

**FCC PART 15 SUBPART B & C SECTION 15.247
&
RSS 247
TEST REPORT**

for

SMART CHARGING DOCK STATION

Model: S30-0547

Prepared for

NORTEK SECURITY & CONTROL LLC
1950 CAMINO VIDA ROBLE, SUITE 150
CARLSBAD, CA 92008

Prepared by: _____

TOREY OLIVER

Approved by: _____

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DATE: JANUARY 27th, 2016

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
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1	Plot Map And Layout of Test Site Below 1GHz
2	Plot Map And Layout of Test Site Above 1GHz
3	Conducted Emissions Test Setup



GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced in any form unless done so in full with the written permission of Compatible Electronics.

This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the federal government.

Device Tested: Smart Charging Dock Station
Model: S30-0547
S/N: None

Product Description: The Numera Smart Docking Station is designed for personal emergency reporting applications. The Smart Docking Station provides the ability to integrate 2GIG protocol sensors for emergency reporting or activity monitoring with your Libris portable emergency reporting pendant. The Smart Docking Station receives emergency reports or activity transmissions through its 345MHz receiver and passes the reports to the Libris via the USB charging pins (if docked) or through Bluetooth (if within range but not docked).

Modifications: The EUT was not modified in order to comply with specifications.

Manufacturer: Nortek Security & Control LLC
1950 Camino Vida Roble, Suite 150
Carlsbad, CA 92008

Test Dates: January 21st, 22nd, & 27th, 2016

February 24th & 25th, 2016

April 12, 2016

Test Specifications: EMI requirements
CFR Title 47, Part 15 Subpart B, Sections 15.107 and 15.109, Subpart C Sections 15.205, 15.207, 15.209, & 15.247.
RSS 247 & RSS GEN

Test Procedure: ANSI C63.4 & C63.10, DA-00-705, and KDB 558074 D01 v03r04.



SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz	Complies with the limits of CFR Title 47 Part 15 Subpart B Section 15.107, C Section 15.207, and RSS GEN
2	Radiated RF Emissions & Harmonics, 9 kHz – 25,000 MHz	Complies with the limits of CFR Title 47 Part 15 Subpart B Section 15.109, Subpart C Sections 15.205, 15.209, and RSS GEN
3	20dB Bandwidth	Complies with CFR Title 47 Part 15 Subpart C Section 15.247 and RSS 247
4	Maximum Peak Conducted Output Power	Complies with CFR Title 47 Part 15 Subpart C Section 15.247 and RSS 247
5	Maximum Peak Power Spectral Density Level In The Fundamental Emission	Complies with CFR Title 47 Part 15 Subpart C Section 15.247 and RSS 247
6	Emissions in Non-Restricted Frequency Bands (in 100kHz Bandwidth)	Complies with CFR Title 47 Part 15 Subpart C Section 15.247 and RSS 247
7	Emissions in the Restricted Bands	Complies with CFR Title 47 Part 15 Subpart C Section 15.247 and RSS 247
8	Average Time of Occupancy	Complies with CFR Title 47 Part 15 Subpart C Section 15.247 and RSS 247
9	Channel Separation	Complies with CFR Title 47 Part 15 Subpart C Section 15.247 and RSS 247



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1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Smart Charging Dock Station Model: S30-0547. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4 & C63.10. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT (equipment under test) hereafter, are within the specification limits defined by the Code of Federal Regulations Title 47, Part 15 Subpart B Sections 15.107 & 15.109, Subpart C sections 15.207, 15.205, 15.209, 15.247, RSS GEN, and RSS 247 as a hybrid device.



2. ADMINISTRATIVE DATA

2.1 Location of Testing

The tests described herein were performed at the test facility of Compatible Electronics, 20621 Pascal Way Lake Forest, California 92630.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Nortek Security & Control LLC

Josh Hansen Regulatory Engineer

Compatible Electronics Inc.

Torey Oliver Test Technician
Matt Harrison Lab Manager

2.4 Date Test Sample was Received

The test sample was received on January 21st, 2016.

2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics as of the date of this test report.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
NVLAP	National Voluntary Laboratory Accreditation Program
CFR	Code of Federal Regulations
PCB	Printed Circuit Board
TX	Transmit
RX	Receive



3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this Test Report.

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4 2014	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz.
RSS 247	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
RSS GEN	General Requirements for Compliance of Radio Apparatus
ANSI C63.10: 2013	American National Standard for Testing Unlicensed Wireless Devices
DA-00-705	Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems
KDB 558074 D01 v03r04	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247



4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration

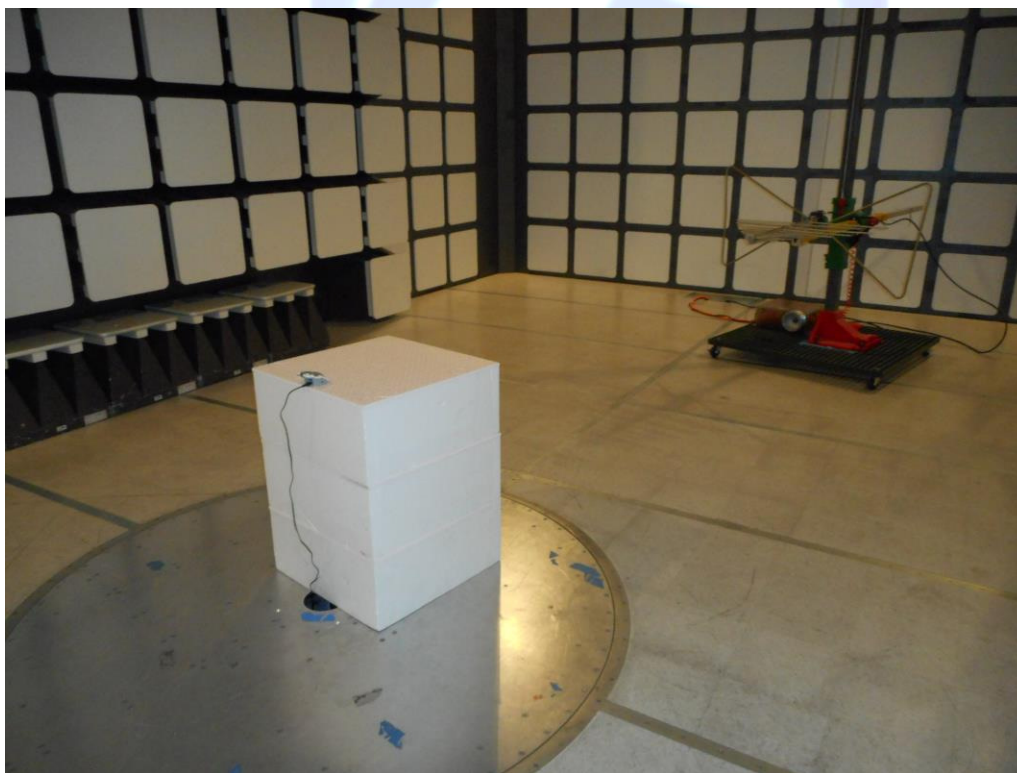
The Smart Charging Dock Station Model: S30-0547 (EUT) was setup in a tabletop configuration. The EUT was connected to PSU and Libris via its dock and the DC power port respectively for spurious emissions tests and was worst case without the Libris for the fundamental emissions tests. The EUT was constantly transmitting and receiving during transmitter and receiver tests and was operating normally during spurious emissions tests. The EUT was checked in all axes and the X-Axis was found to be the worst case.

All data rates and modes were investigated in which the BLE mode with GFSK modulation and a 1 Mbit/s data rate applied was the worst case scenario.

The voltage was varied $\pm 15\%$ and the transmitting signal amplitude and frequency did not vary.

It was determined that the emissions were at their highest level when the EUT was transmitting in the configuration described above for Radiated Emissions. For the spurious emissions, all modes were checked and the worst case was taken in the above configuration. Please see Appendix E for the test data.

4.1.1 Photograph Test Configuration (Showing X-Axis Orientation)



4.1.2 Cable Construction and Termination

Cable 1

This is a 1.5 meter, unshielded, cable that connects the EUT to the EUT power supply. The cable has a barrel connector at the EUT end and is hardwired into the power supply. The cable was not bundled.



5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List**

#	EQUIPMENT TYPE	MANU-FACTURER	MODEL	SERIAL NUMBER
1	SMART CHARGING DOCK STATION(EUT)	NORTEK SECURITY & CONTROL LLC	S30-0547	NONE
2	LIBRIS (FOR DOCKING)	NUMERA	10-1113	358859040568120
3	EUT POWER SUPPLY	EMERSON	DA12-050US-M	H704NS1TF102C



5.2

EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Computer	Compatible Electronics	NONE	NONE	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100219	9/3/2015	9/3/2016
MXE Receiver	Keysight	N9038A	MY51210150	12/29/2015	12/29/2016
Antenna, Loop	Com Power	AL-130	121049	12/06/2013	12/06/2016
Antenna, CombiLog	Com Power	AC-220	003	5/21/2014	5/21/2016
Antenna, Horn 1-18GHz	Com Power	AH-118	071225	7/1/2014	7/1/2016
Antenna, Horn 18-26 GHz	Com Power	AH-826	081033	NCR	NCR
Pre-Amp, 1-18GHz	Com Power	PAM-118A	551033	2/6/2015	2/6/2017
Pre-Amp, 18-40GHz	Com Power	PA-840	181289	6/16/2014	6/16/2016
LISN	Com Power	LI-215	191935	4/16/2015	4/16/2016
High Pass Filter	AMTI Microwave Circuits	H3G020G4	481230	6/4/2014	6/4/2016
Mast, Antenna Positioner	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Antenna Mast	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Turntable	Sunol Science Corporation	FM 2001	N/A	N/A	N/A
Mast and Turntable Controller	Sunol Science Corporation	SC104V	020808-1	N/A	N/A



6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and the figures in Appendix D of this report for test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 by 0.8 meter high non-conductive table, which was placed on the ground plane.

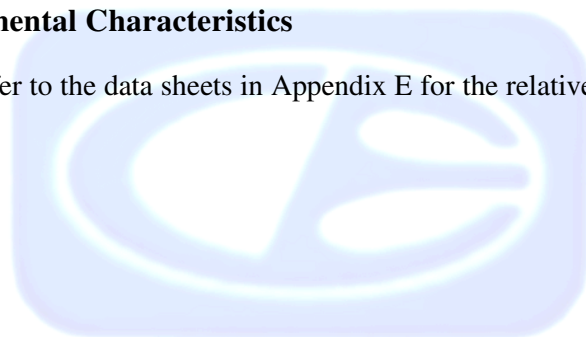
For testing above 1 GHz the EUT was mounted 1.5 meter above the ground plane.

The EUT was not grounded.

While directly connecting to the EUT the test equipment matched the nominal impedance of the EUT.

6.3 Facility Environmental Characteristics

When applicable refer to the data sheets in Appendix E for the relative humidity, air temperature, and barometric pressure.



7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Channel Number and Frequencies

Bluetooth Low Energy Mode:

There are a total of 40 channels. The low channel is at 2402.0 MHz and the high channel is at 2480.0 MHz. There is approximately 2 MHz separation between channels and the EUT uses GFSK, $\pi/4$ -DPSK, and 8DPSK modulation.

Bluetooth Classic Mode:

There are a total of 80 channels. The low channel is at 2402.0 MHz and the high channel is at 2480.0 MHz. There is approximately 1 MHz separation between channels and the EUT uses GFSK, $\pi/4$ -DPSK, and 8DPSK modulation.

Bluetooth Enhanced Data Rate Mode:

There are a total of 80 channels. The low channel is at 2402.0 MHz and the high channel is at 2480.0 MHz. There is approximately 1 MHz separation between channels and the EUT uses GFSK, $\pi/4$ -DPSK, and 8DPSK modulation.

7.2 Antenna

The antenna is made up of a Surface Mount Device on ground.



8. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

8.1 RF Emissions

8.1.1 Conducted Emissions Test

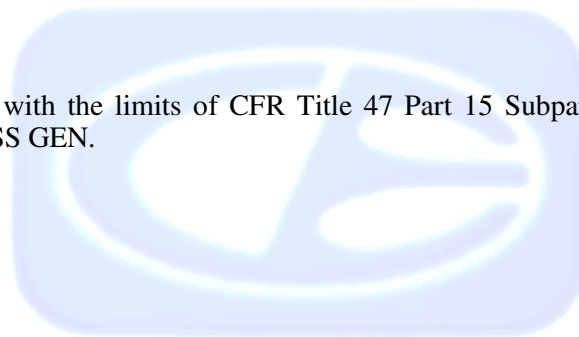
The EMI receiver was used as a measuring meter. A quasi-peak and/or average reading was taken only where indicated in the data sheets. The LISN output was measured using the EMI receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding, and grounding of the EUT. The EUT received its power through the LISN, which was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the computer software. The final qualification data is located in Appendix E.

Test Results:

The EUT complies with the limits of CFR Title 47 Part 15 Subpart B Section 15.107, Subpart C section 15.207 & RSS GEN.



8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The R&S receiver was used as a measuring meter. The receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the receiver records the highest measured reading over all the sweeps. Amplifiers were used to increase the sensitivity of the instrument. There was external preamps used for frequencies above 1 GHz.

For spurious emissions the quasi-peak detector was used for frequencies below 1GHz and the average detector was used for frequencies above 1 GHz.

For the Fundamental and Harmonic emissions a duty cycle average was used.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE (MHz)	TRANSDUCER	EFFECTIVE MEASUREMENT BANDWIDTH
.009 to .150	Active Loop Antenna	200 Hz
.150 to 30	Active Loop Antenna	9 kHz
30 to 1000	Combilog Antenna	100 kHz
1000 to 25000	Horn Antenna	1 MHz

The TDK FAC-3 shielded test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI, EN 50147-2, and CISPR 22. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters in both vertical and horizontal polarizations (for E field radiated field strength).

Test Results:

The EUT complies with the limits of CFR Title 47 Part 15 Subpart B Section 15.109, Subpart C sections 15.205, 15.209, 15.247, and RSS GEN.



8.1.3 20dB Bandwidth

The 20dB Bandwidth was measured directly connected to the EMI Receiver using a RBW equal to 1% of the 20dB Bandwidth and a VBW of 3* the RBW. A peak detector and a max hold trace were used with auto sweep time. The trace was allowed to fully maximize. We measured the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission. The final qualification data sheets are located in Appendix E.

Test Results:

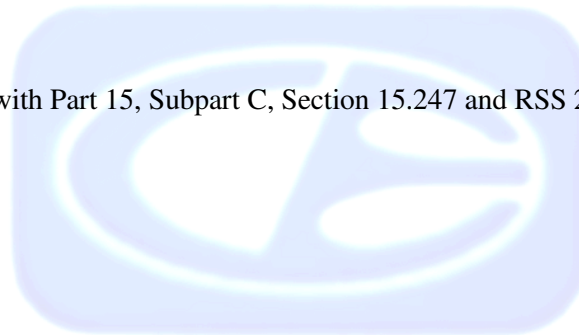
The EUT complies with Part 15, Subpart C, Section 15.247 and RSS 247.

8.1.4 Maximum Peak Conducted Output Power

The maximum peak conducted output power was measured using a Peak Power Meter.. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247 and RSS 247.



8.1.5 Maximum Peak Power Spectral Density Level In The Fundamental Emission

The Maximum Peak Power Spectral Density Level in the Fundamental Emission was measured directly connected to the EMI Receiver. Tuned to the center frequency of the DTS channel and set the span to 1.5 times the DTS bandwidth. RBW was set to minimum 3 kHz but not > 100kHz and VBW 3 * RBW. A peak detector was used with the sweep time set to auto. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the maximum amplitude level within the RBW. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247 and RSS 247.

8.1.6 Emissions in Non-Restricted Frequency Bands (in 100kHz Bandwidth)

The Emissions in Non-Restricted Frequency Bands (in 100kHz Bandwidth) measurements were performed using the EMI Receiver directly connected to the EUT. A reference level was established by setting the instrument center frequency to DTS channel center frequency. The span was set to ≥ 1.5 times the DTS bandwidth. The RBW was 100 kHz and VBW 300 kHz. A peak detector was used with a sweep time set to auto. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the level and 20dB below that was the reference level. For Emission Level Measurement the center frequency and span were set to encompass the frequency range to be measured. RBW was set to 100 kHz and VBW to 300 kHz. A peak detector was used with a sweep time set to auto. The number of measurement points were greater than span/RBW. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the maximum amplitude level. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247 and RSS 247.



8.1.7 Emissions in the Restricted Bands (Radiated)

The Emissions in the Restricted Bands measurement was performed using the EMI Receiver at a 3-meter test distance to obtain the final test data. A duty cycle average was applied which was calculated as shown below. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.205 and RSS GEN.

8.1.8 Duty Cycle

The Duty Cycle was calculated with the formula shown below. This duty cycle was applied has an average correction factor for the fundamental and harmonics emissions as stated in 8.1.2.

Duty Cycle Correction Factor = -20.00dB

$$\delta(\text{dB}) = 20 \log \left[\frac{\sum (nt_1 + mt_2 + \dots + \xi t_x)}{T} \right]$$

where

n is the number of pulses of duration t_1

m is the number of pulses of duration t_2

ξ is the number of pulses of duration t_x

T is the period of the pulse train or 100 ms if the pulse train length is greater than 100 ms

Pulse Type 1 = $3 * 2914.83 \mu\text{S} = 8.74449 \text{ mS}$

Total On Time = 8.74449 mS

$100\text{ms} / 8.74449 = 0.0874$

$20 \log (0.0874) = -21.165 \text{ dB}$ correction factor

Max Duty Cycle Correction Factor = -20.00dB

8.1.9 Emissions Radiated Outside of the Fundamental Frequency Band

The Band Edge measurement was performed using the EMI Receiver at a 3-meter test distance to obtain the final test data. The low and high channels were tuned to during the low and high band edge tests. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247 and RSS 247.



8.1.10 Average Time of Occupancy

The average time of occupancy was measured using a near field probe connected to the EMI Receiver using a RBW of 1MHz VBW of 3* the RBW. A peak detector and a max hold trace were used with a sweep time long enough to capture the entire dwell time per hopping channel. The trace was allowed to fully maximize. We measured the maximum width of the emission pulse per channel and measured how many times that channel was occupied. The final qualification data sheets are located in Appendix E.

Test Results:

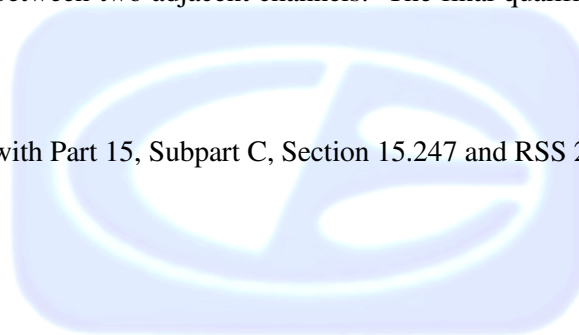
The EUT complies with Part 15, Subpart C, Section 15.247 and RSS 247.

8.1.11 Carrier Frequency Separation

The carrier frequency separation was measured using a near field probe connected to the EMI Receiver using a RBW equal to 1% of the span and a VBW of 3* the RBW. A peak detector and a max hold trace were used with auto sweep time. The trace was allowed to fully maximize. We measured the delta between two adjacent channels. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247 and RSS 247.



9. TEST PROCEDURE DEVIATIONS

The test procedures were not deviated from throughout all tests.

10. CONCLUSIONS

The Smart Charging Dock Station Model: S30-0547 meets all of the relevant specification requirements defined in the Code of Federal Regulations Title 47, Part 15 Subpart B Sections 15.107 & 15.109, Subpart C sections 15.205, 15.207, 15.209, 15.247, RSS GEN & RSS 247.





APPENDIX A

***LABORATORY ACCREDITATIONS AND
RECOGNITIONS***



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LABORATORY ACCREDITATIONS AND RECOGNITIONS



NVLAP LAB CODES 200063-0,
200528-0, 200527-0

For US, Canada, Australia/New Zealand, Taiwan and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025 an ISO 9002 equivalent. Please follow the link to the NIST site for each of our facilities NVLAP certificate and scope of accreditation.

NVLAP listing links

Agoura Division - <http://ts.nist.gov/Standards/scopes/2000630.htm>

Brea Division - <http://ts.nist.gov/Standards/scopes/2005280.htm>

Silverado/Lake Forest Division - <http://ts.nist.gov/Standards/scopes/2005270.htm>



ANSI listing

[CETCB](http://www.ansica.org/wwwversion2/outside/ALLdirectoryDetails.asp?menuID=1&prgID=3&orgID=123&status=4)

<https://www.ansica.org/wwwversion2/outside/ALLdirectoryDetails.asp?menuID=1&prgID=3&orgID=123&status=4>



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA).

We are also certified/listed for IT products by the following country/agency:



VCCI Listing, from VCCI site

[Enter "Compatible" in search form](http://www.vcci.or.jp/vcci_e/activity/registration/setsubi.html) http://www.vcci.or.jp/vcci_e/activity/registration/setsubi.html



FCC Listing, from FCC OET site

[FCC test lab search](https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm) <https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm>



Compatible Electronics IC listing can be found at:

<http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home>



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APPENDIX B***MODIFICATIONS TO THE EUT***

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MODIFICATIONS TO THE EUT

There were no modifications made during testing.





APPENDIX C

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***



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ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Smart Charging Dock Station

Model: S30-0547

S/N: None

Client provided additional models not tested but covered by similarity are listed below.

According to the manufacturer, all models are electrically and mechanically identical. The only difference between the various models is color of the enclosure.

1. Model: S30-0548 which has a dark grey color scheme.



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



APPENDIX D

DIAGRAMS, FACTORS, CHARTS, AND PHOTOS



Brea Division
114 Olinda Drive
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Silverado Division
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Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

FIGURE 1: PLOT MAP AND LAYOUT OF TEST SITE BELOW 1GHZ

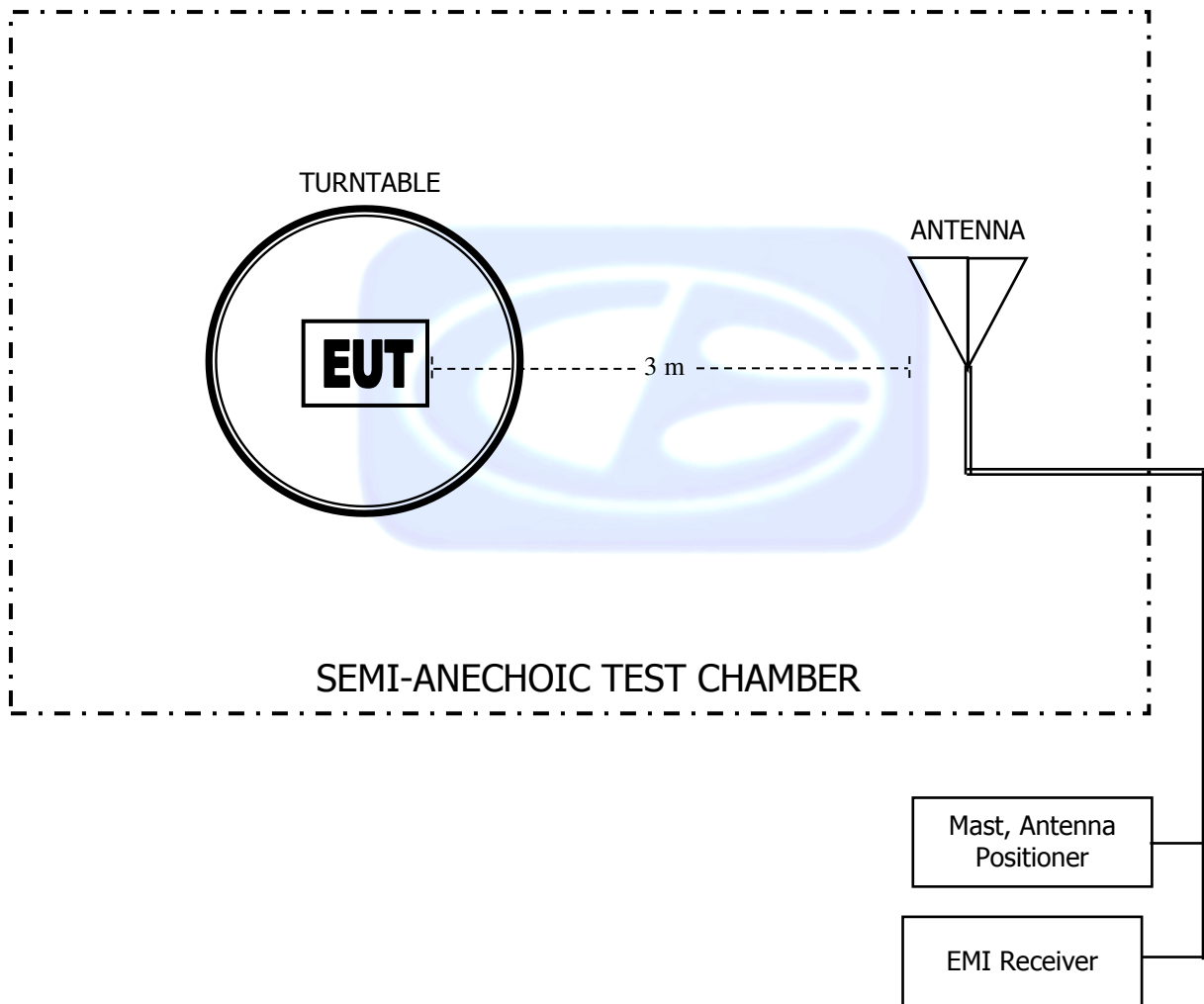


FIGURE 2: PLOT MAP AND LAYOUT OF TEST SITE ABOVE 1GHZ

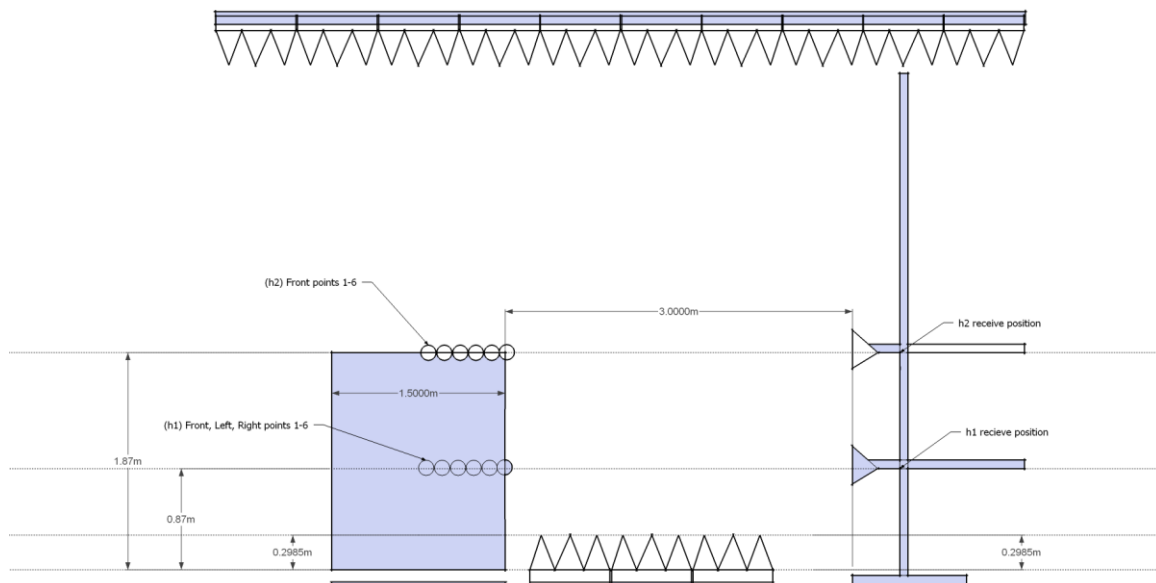
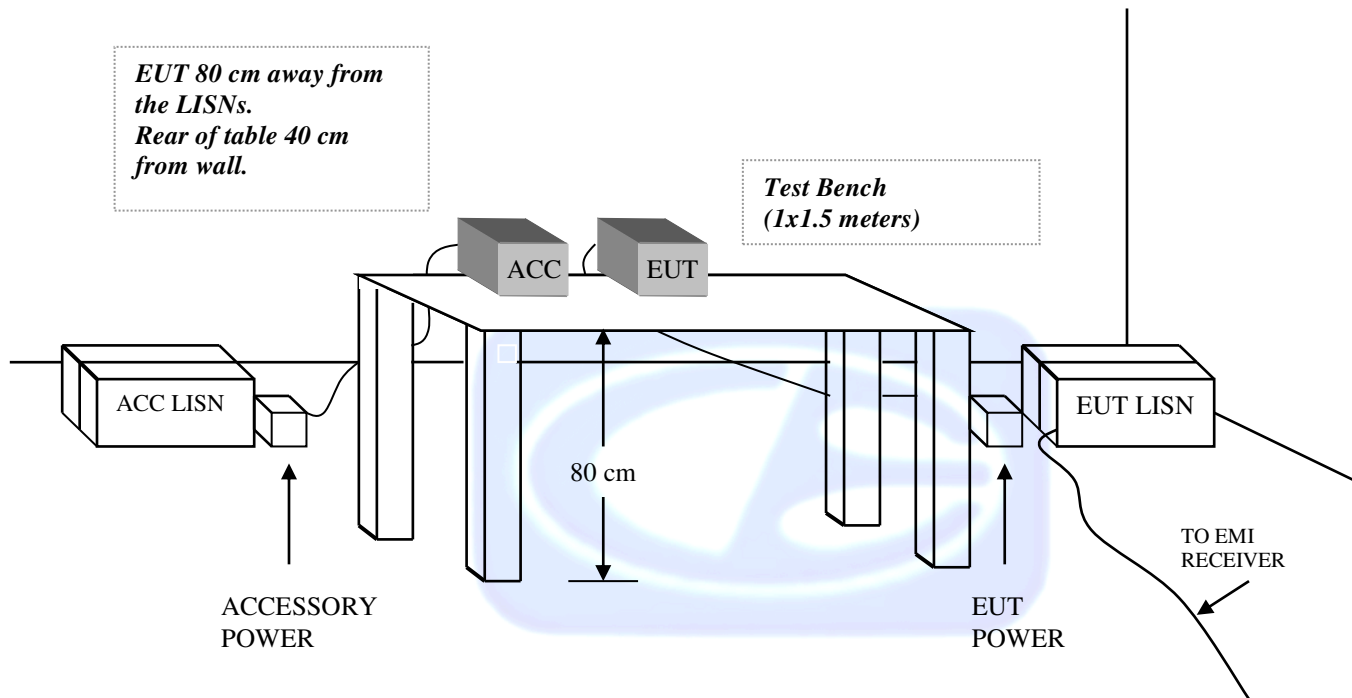


FIGURE 3: CONDUCTED EMISSIONS TEST SETUP

COM-POWER AL-130**LOOP ANTENNA****S/N: 121049****CALIBRATION DUE: DECEMBER 6, 2016**

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)	FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-34.64	16.86	0.8	-36.32	15.18
0.01	-34.78	16.72	0.9	-36.22	15.28
0.02	-35.91	15.59	1.0	-36.22	15.28
0.03	-35.48	16.02	2.0	-35.91	15.59
0.04	-35.82	15.68	3.0	-35.91	15.59
0.05	-36.49	15.01	4.0	-36.01	15.49
0.06	-36.30	15.20	5.0	-35.80	15.70
0.07	-36.43	15.07	6.0	-36.00	15.50
0.08	-36.30	15.20	7.0	-35.90	15.60
0.09	-36.39	15.11	8.0	-35.70	15.80
0.1	-36.41	15.09	9.0	-35.70	15.80
0.2	-36.61	14.89	10.0	-35.60	15.90
0.3	-36.63	14.87	15.0	-36.52	14.98
0.4	-36.52	14.99	20.0	-35.75	15.75
0.5	-36.63	14.87	25.0	-37.78	13.72
0.6	-36.62	14.88	30.0	-38.62	12.88
0.7	-36.53	14.97			



COM-POWER AC-220**LAB P - COMBILOG ANTENNA****S/N: 003****CALIBRATION DUE: MAY 21, 2016**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	22.90	160	15.20
35	22.80	180	14.40
40	23.50	200	14.10
45	21.90	250	15.90
50	22.00	300	18.20
60	18.10	400	19.40
70	12.80	500	21.50
80	12.10	600	22.00
90	12.70	700	23.90
100	13.00	800	25.80
120	15.50	900	27.00
140	14.40	1000	27.90



COM-POWER AH-118**HORN ANTENNA****S/N: 071225****CALIBRATION DUE: JULY 1, 2016**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1000	30.2	9500	43.86
1500	29.46	10000	43.85
2000	31.81	10500	43.54
2500	35.95	11000	45.28
3000	33.6	11500	45.18
3500	36.43	12000	45.03
4000	35.85	12500	44.33
4500	36.32	13000	45.71
5000	40.11	13500	46.89
5500	38.7	14000	46.88
6000	39.33	14500	45.89
6500	40.08	15000	49.59
7000	41.17	15500	46.49
7500	43.58	16000	45.01
8000	41.55	16500	44.57
8500	42.63	17000	48.28
9000	43.5	17500	49.88
		18000	49.94



COM-POWER PAM-118A**1-18GHz - PREAMPLIFIER****S/N: 551033****CALIBRATION DUE: FEBRUARY 5, 2016**

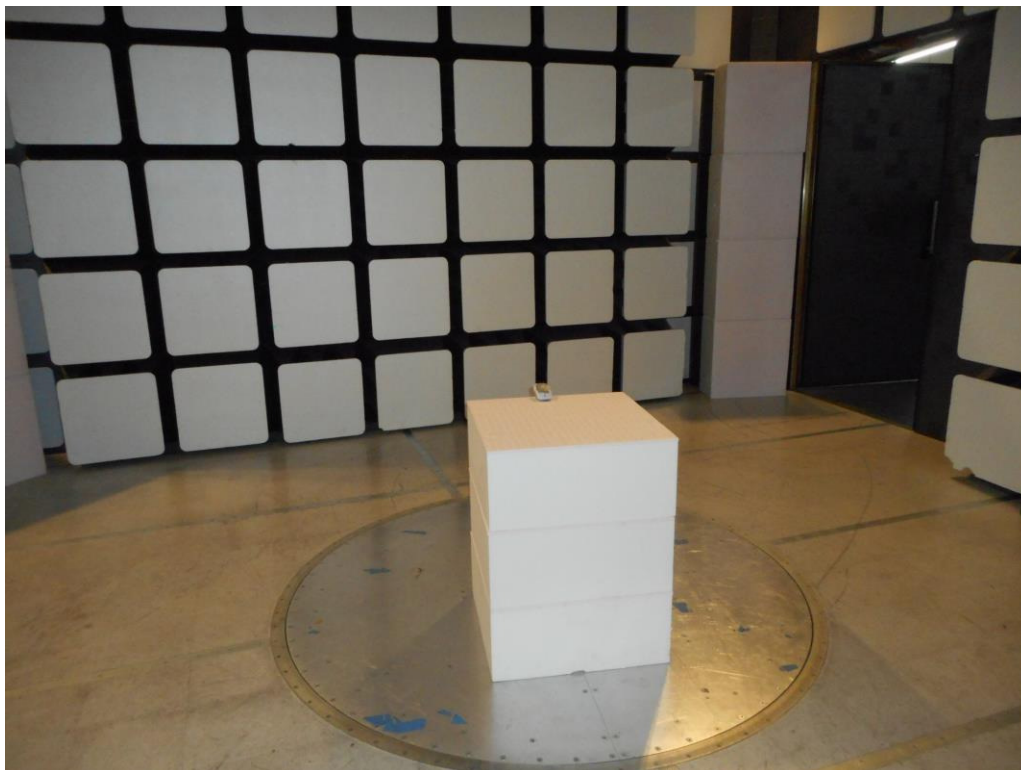
FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
500	36.57	5500	40.23
1000	38.49	6000	38.68
1100	38.83	6500	39.16
1200	39.05	7000	35.30
1300	39.06	7500	36.25
1400	38.83	8000	36.08
1500	38.52	8500	36.03
1600	38.69	9000	36.9
1700	39.54	9500	37.29
1800	39.66	10000	37.56
1900	40.49	11000	37.23
2000	40.03	12000	37.05
2500	39.30	13000	36.15
3000	41.29	14000	33.80
3500	40.61	15000	37.41
4000	41.49	16000	37.98
4500	41.51	17000	35.82
5000	40.41	18000	32.01



COM-POWER PA-840**18-40 GHz PREAMPLIFIER****S/N: 181289****CALIBRATION DUE: JUNE 16, 2016**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
18000	29.4	31500	28.2
19000	28.8	32000	28.6
20000	30.5	32500	28.8
21000	31.4	33000	28.2
22000	31.2	33500	27.7
23000	30.1	34000	27.2
24000	30.3	34500	28.2
25000	29.8	35000	27.3
26000	30.5	35500	27.2
26500	30.7	36000	27.2
27000	30.8	36500	27.5
27500	30.2	37000	27.0
28000	30.1	37500	26.7
28500	30.2	38000	26.2
29000	30.1	38500	26.5
29500	29.8	39000	26.3
30000	29.2	39500	26.9
30500	28.4	40000	27.6
31000	29.8		



**FRONT VIEW**

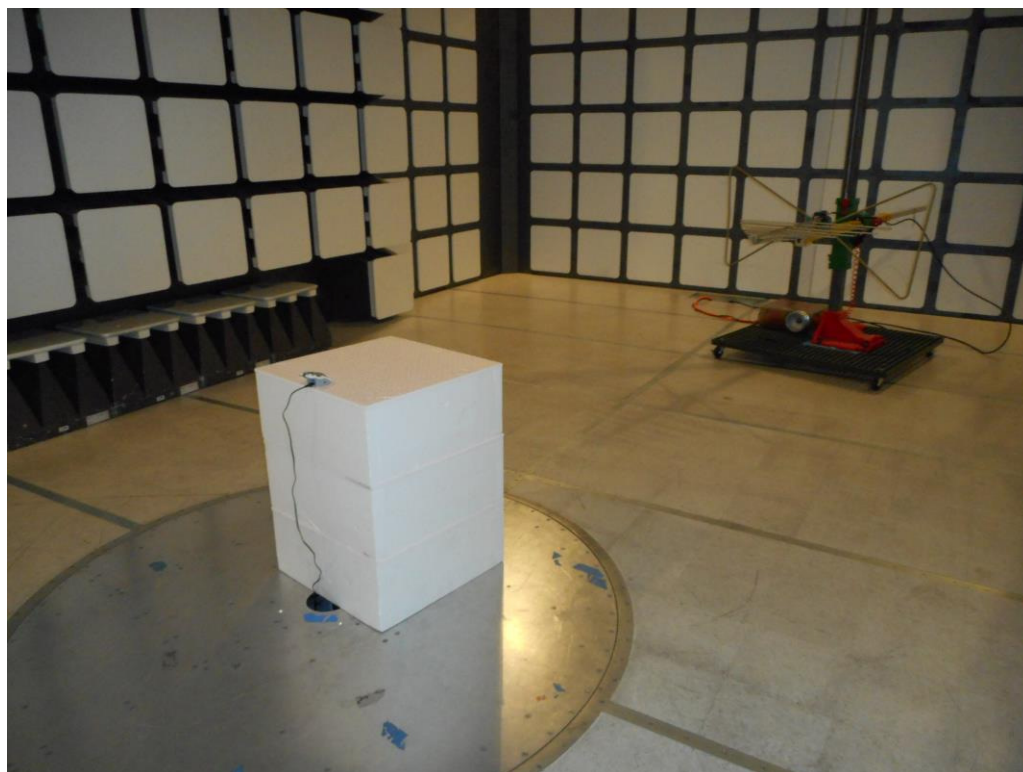
NORTEK SECURITY & CONTROL LLC
SMART CHARGING DOCK STATION

Model: S30-0547

FCC SUBPART C - RADIATED EMISSIONS < 1GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



**REAR VIEW**

NORTEK SECURITY & CONTROL LLC
SMART CHARGING DOCK STATION

Model: S30-0547

FCC SUBPART C - RADIATED EMISSIONS < 1GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
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(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

**FRONT VIEW**

NORTEK SECURITY & CONTROL LLC
SMART CHARGING DOCK STATION

Model: S30-0547

FCC SUBPART C - RADIATED EMISSIONS > 1GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

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Lake Forest Division
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(949) 587-0400

**REAR VIEW**

NORTEK SECURITY & CONTROL LLC
SMART CHARGING DOCK STATION

Model: S30-0547

FCC SUBPART C - RADIATED EMISSIONS > 1GHz

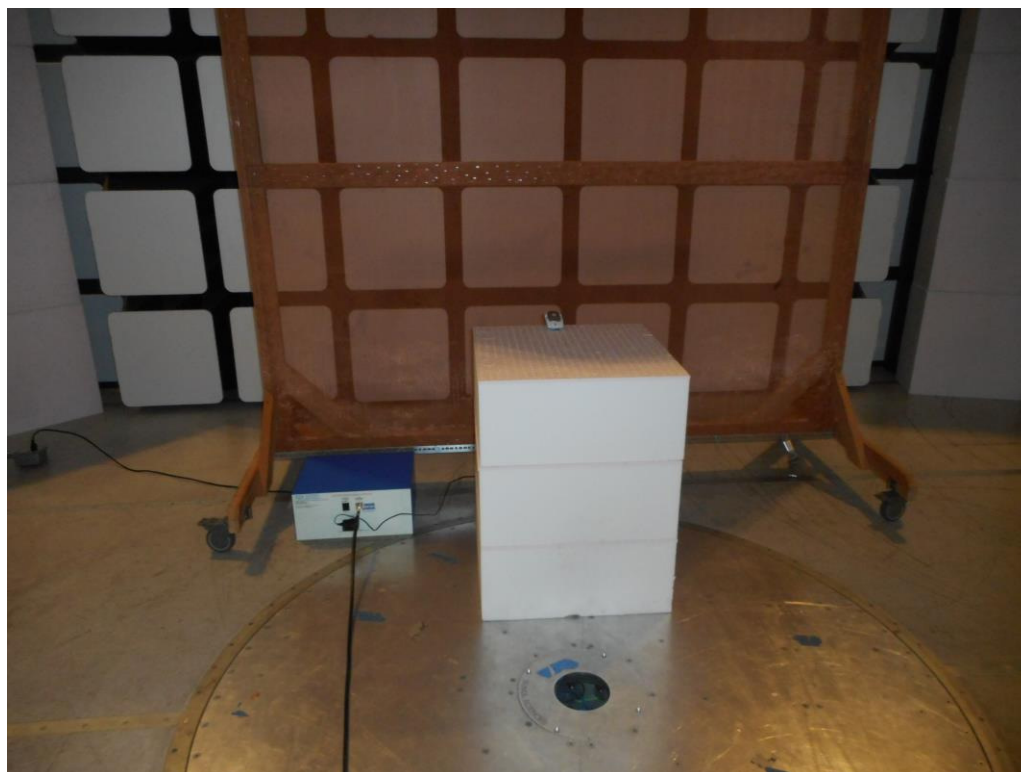
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

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114 Olinda Drive
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(949) 587-0400

**FRONT VIEW**

NORTEK SECURITY & CONTROL LLC
SMART CHARGING DOCK STATION
Model: S30-0547
FCC SUBPART C - CONDUCTED EMISSIONS

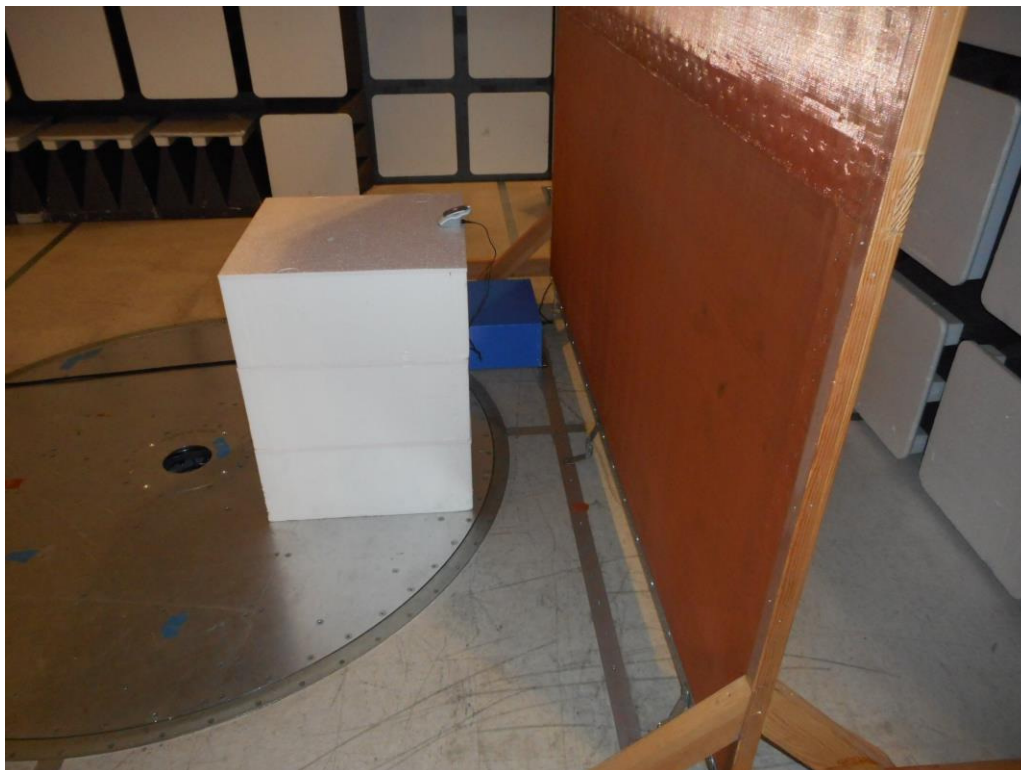
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

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**REAR VIEW**

NORTEK SECURITY & CONTROL LLC
SMART CHARGING DOCK STATION
Model: S30-0547
FCC SUBPART C - CONDUCTED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

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APPENDIX E***RADIATED EMISSIONS DATA SHEETS***

Brea Division
114 Olinda Drive
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(714) 579-0500

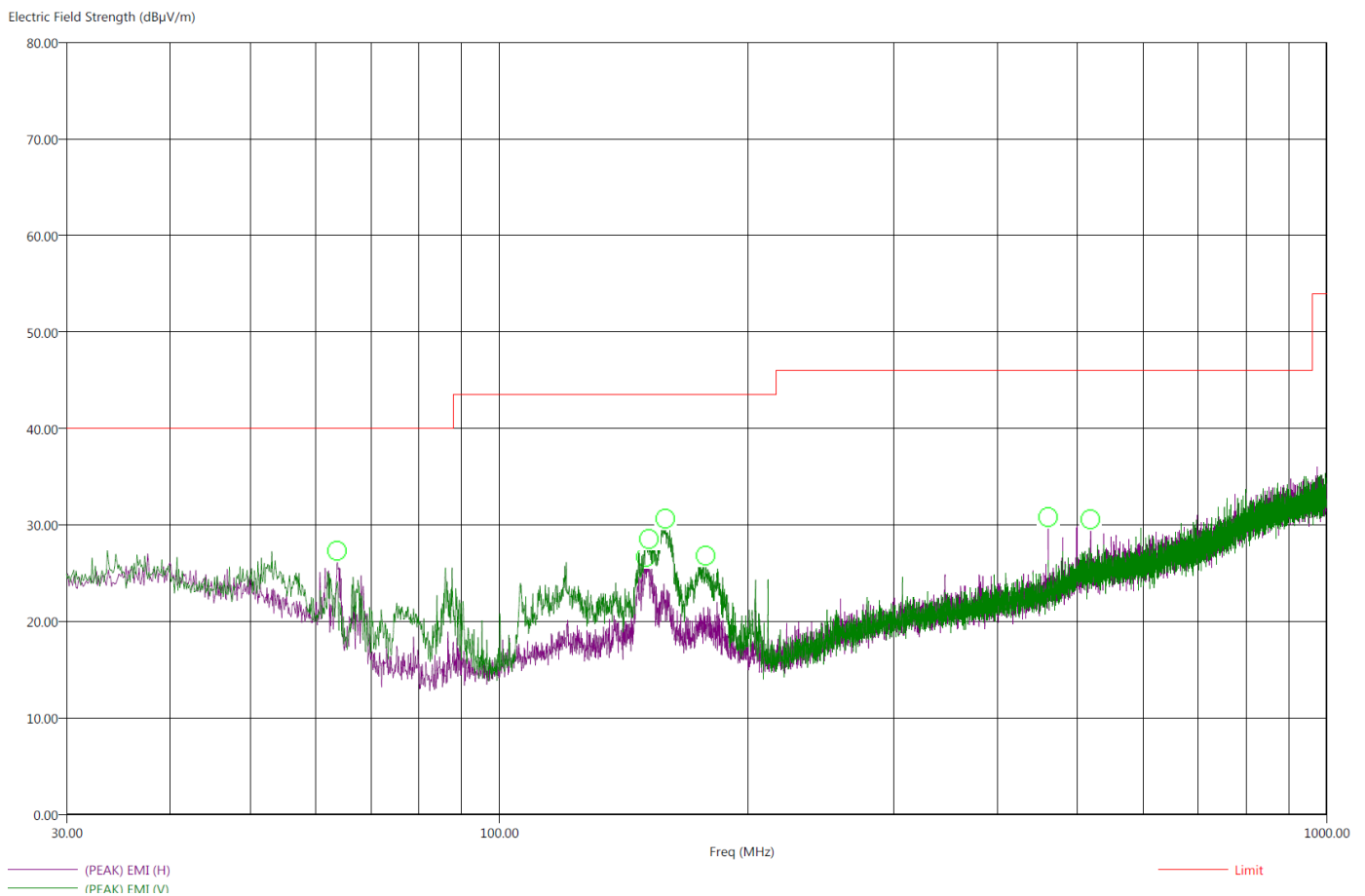
Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
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Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Title: FCC 15.209
File: Radiated Pre-Scan 30-1000Mhz
Operator: Torey Oliver
EUT Type: Number BT Docking Station.
EUT Condition: The EUT is in a hopping mode.
Comments: Docked and connected to PSU.
Temp: 73f
Hum: 36%
120V 60Hz

2/24/2016 8:47:44 PM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (Lab P)

This was worst case for all modes and channels

There were no radiated emissions besides harmonics found between 9kHz-30 MHz or 1GHz-25GHz.



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19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Title: FCC 15.209

2/24/2016 9:00:51 PM

File: Radiated Final 30-1000Mhz

Sequence: Final Measurements

Operator: Torey Oliver

EUT Type: Number BT Docking Station.

EUT Condition: The EUT is in a hopping mode.

Comments: Docked and connected to PSU.

Temp: 73f

Hum: 36%

120V 60Hz

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq (MHz)	(QP) Margin (dB)	(QP) EMI (dB μ V/m)	(PEAK) EMI (dB μ V/m)	Limit (dB μ V/m)	Pol	Ttbl Agl (deg)	Twr Ht (cm)	Transducer(dB)	Cable(dB)
63.70	-22.91	17.09	23.42	40.00	H	262.00	199.11	16.01	0.58
150.50	-20.85	22.67	26.56	43.52	H	201.25	191.94	14.84	1.00
151.80	-18.01	25.51	29.46	43.52	V	103.75	99.88	14.88	1.00
158.80	-14.55	28.97	32.14	43.52	V	110.25	104.00	15.16	0.99
177.70	-22.54	20.98	25.94	43.52	V	0.25	106.47	14.49	0.96
460.80	-16.26	29.74	32.33	46.00	H	71.75	112.41	20.73	1.60

*This was worst case for all modes and channels**There were no radiated emissions besides harmonics found between 9kHz-30 MHz or 1GHz-25GHz.*

Brea Division
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Lake Forest Division
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(949) 587-0400

APPENDIX E
CONDUCTED EMISSIONS DATA SHEETS

Brea Division
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(714) 579-0500

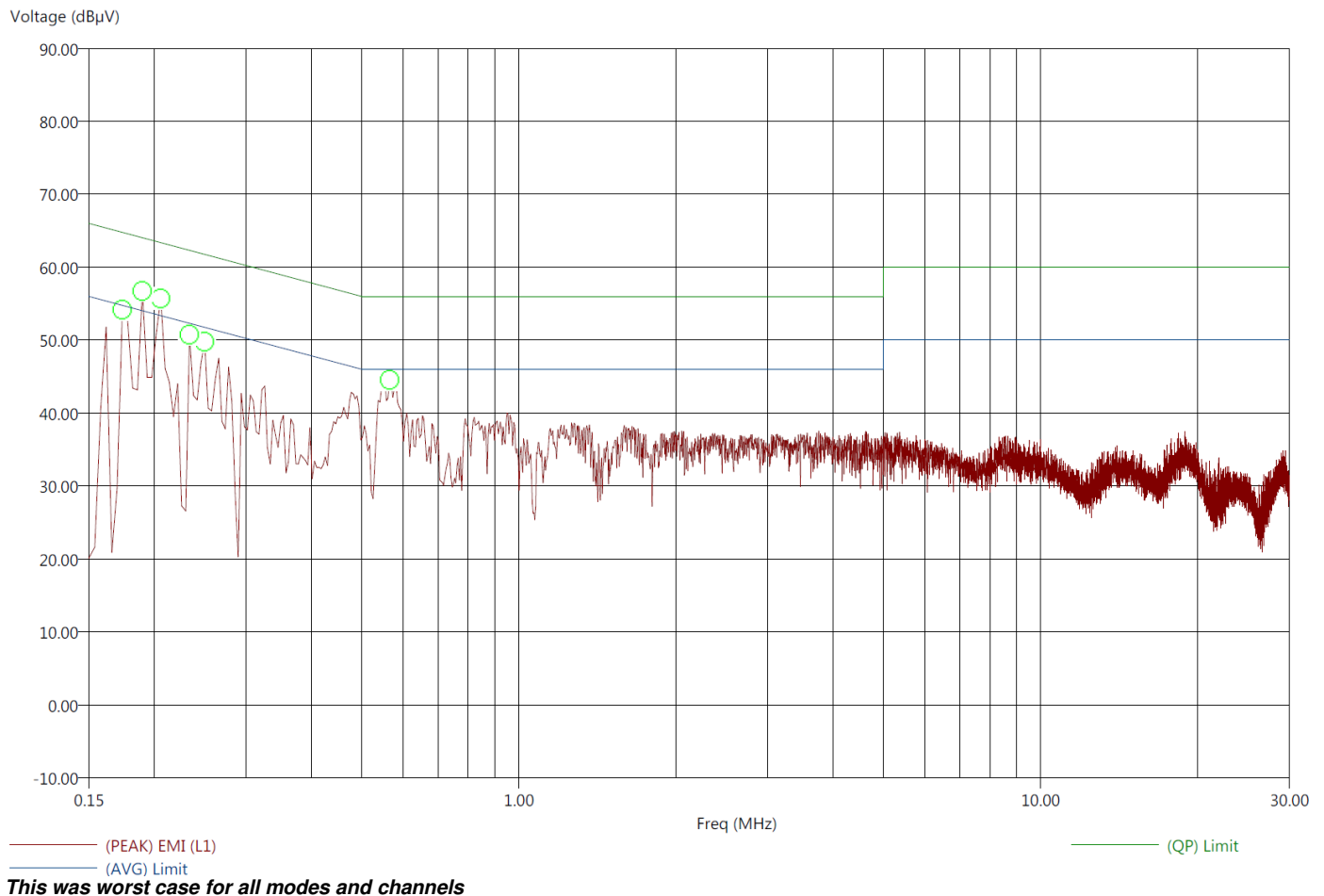
Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Title: FCC 15.207
File: Conducted Pre-Line
Operator: Matt Harrison
EUT Type: Number BT Docking Station.
EUT Condition: Normal Operation/Transmitting.
Comments: Docked and connected to PSU.
Temp: 73f
Hum: 36%
120V 60Hz

1/27/2016 7:04:32 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (LAB P)

Brea Division
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Brea, CA 92823
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Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

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Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Title: FCC 15.207

1/27/2016 7:07:14 AM

File: Conducted Final-Line

Sequence: Final Measurements

Operator: Matt Harrison

EUT Type: Number BT Docking Station.

EUT Condition: Normal Operation/Transmitting.

Comments: Docked and connected to PSU.

Temp: 73f

Hum: 36%

120V 60Hz

Compatible Electronics, Inc. FAC-3 (LAB P)

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBμV)	(QP) EMI (dBμV)	(PEAK) EMI (dBμV)	(AVG) Limit (dBμV)	(QP) Limit (dBμV)	Transducer (dB)	Cable (dB)
0.17	-28.40	-19.00	26.37	45.77	56.06	54.77	64.77	0.55	0.06
0.19	-13.51	-8.48	40.52	55.56	58.90	54.04	64.04	0.51	0.04
0.21	-17.99	-10.94	35.38	52.43	56.51	53.37	63.37	0.47	0.04
0.23	-30.30	-24.09	22.01	38.21	48.52	52.31	62.31	0.41	0.09
0.25	-20.45	-16.12	31.31	45.63	50.40	51.76	61.76	0.38	0.11
0.57	-17.20	-12.87	28.80	43.13	44.67	46.00	56.00	0.24	0.37

This was worst case for all modes and channels

Brea Division
114 Olinda Drive
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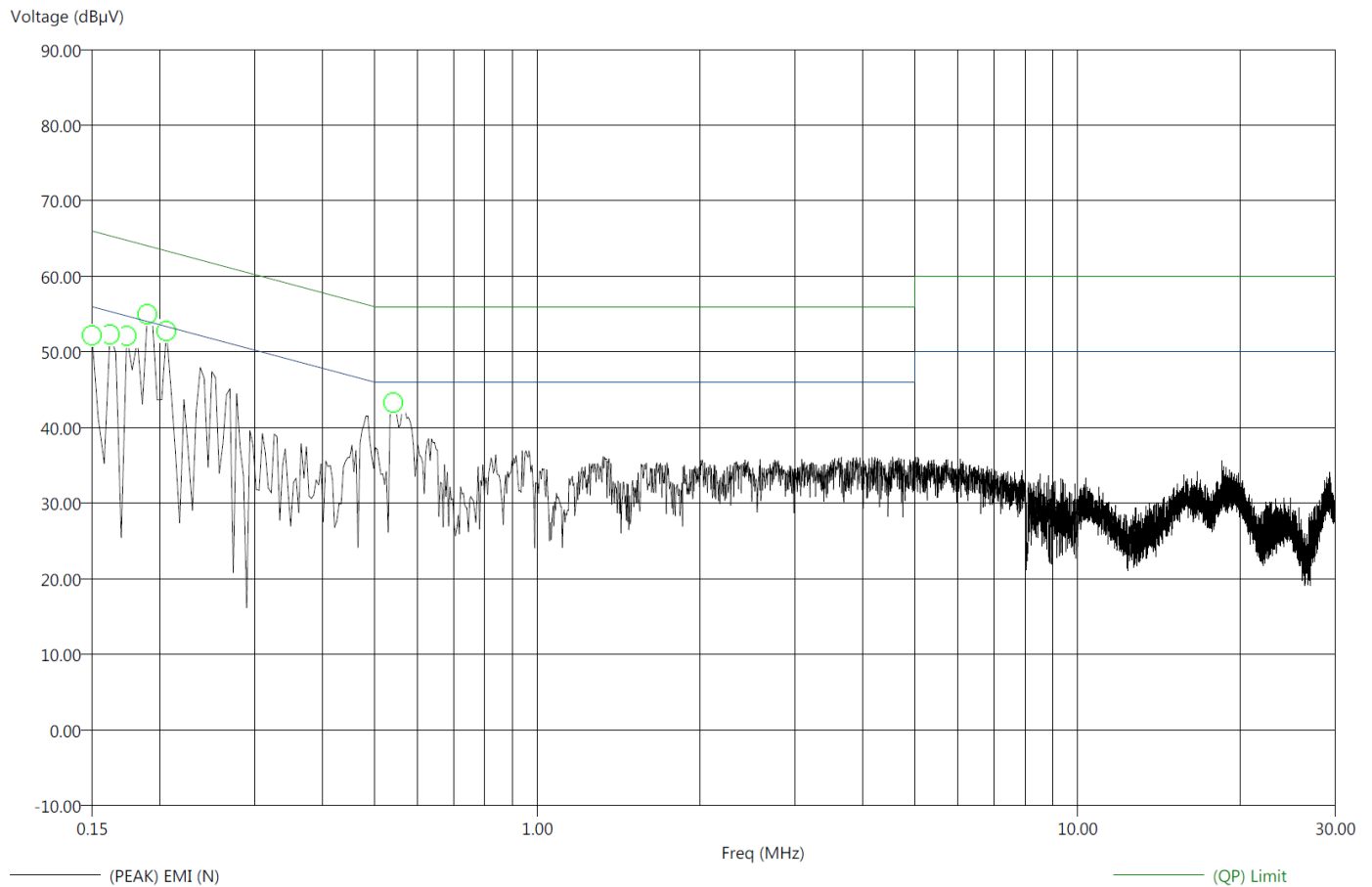
Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Title: FCC 15.207
File: Conducted Pre-Neutral
Operator: Matt Harrison
EUT Type: Number BT Docking Station.
EUT Condition: Normal Operation/Transmitting.
Comments: Docked and connected to PSU.
Temp: 73f
Hum: 36%
120V 60Hz

1/27/2016 7:20:56 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (LAB P)

This was worst case for all modes and channels



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Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Title: FCC 15.207

1/27/2016 7:26:15 AM

File: Conducted Final-Neutral

Sequence: Final Measurements

Operator: Matt Harrison

EUT Type: Number BT Docking Station.

EUT Condition: Docked and connected to PSU.

Comments: Docked and connected to PSU.

Temp: 73f

Hum: 36%

120V 60Hz

Compatible Electronics, Inc. FAC-3 (LAB P)

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBμV)	(QP) EMI (dBμV)	(PEAK) EMI (dBμV)	(AVG) Limit (dBμV)	(QP) Limit (dBμV)	Transducer (dB)	Cable (dB)
0.15	-29.00	-20.17	27.00	45.83	55.46	56.00	66.00	0.40	0.09
0.16	-35.69	-12.27	19.67	53.09	53.22	55.36	65.36	0.37	0.07
0.17	-28.78	-18.99	25.98	45.77	55.66	54.77	64.77	0.34	0.06
0.19	-15.10	-10.70	38.94	53.33	56.67	54.04	64.04	0.30	0.04
0.21	-20.03	-13.00	33.34	50.36	54.52	53.37	63.37	0.26	0.04
0.54	-16.56	-14.10	29.44	41.90	43.48	46.00	56.00	0.03	0.37

This was worst case for all modes and channels

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Lake Forest Division
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(949) 587-0400

20DB BANDWIDTH



DATA SHEETS



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Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

BT ENHANCED MODE

20 dB BANDWIDTH

FCC 15.247

Company:	Nortek	Date:	4/12/2016
EUT:	Numera BT Docking Station	Lab:	R
Models:	S30-0547	Test ENG:	Torey Oliver
Mode:	BLE		

Compatible Electronics, Inc. FAC-3 (Lab R)

20dB Bandwidth

Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
2402	936.7	N/A	N/A	Peak	Limit N/A for Hybrid Device
2440	934.6	N/A	N/A	Peak	Limit N/A for Hybrid Device
2480	886.3	N/A	N/A	Peak	Limit N/A for Hybrid Device



MAXIMUM PEAK CONDUCTED OUTPUT POWER

DATA SHEETS



Brea Division
114 Olinda Drive
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Lake Forest Division
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(949) 587-0400

MAXIMUM PEAK CONDUCTED OUTPUT POWER**BLE MODE****FCC 15.247**

Company:

Nortek

Date:

1/20/2016

EUT:

Numera BT Docking Station

Lab:

R

Models:

S30-0547

Test ENG:

Matt H.

Mode:

BLE

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2402	8.95	30.00	-21.05	Peak	
2440	8.67	30.00	-21.33	Peak	
2480	8.39	30.00	-21.61	Peak	



MAXIMUM PEAK CONDUCTED OUTPUT POWER**BT MODE****FCC 15.247**

Company:	Nortek	Date:	1/20/2016
EUT:	Numera BT Docking Station	Lab:	R
Models:	S30-0547	Test ENG:	Matt H.
Mode:	BT		

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2402	5.37	30.00	-24.63	Peak	
2440	5.28	30.00	-24.72	Peak	
2480	4.77	30.00	-25.23	Peak	



MAXIMUM PEAK CONDUCTED OUTPUT POWER**BT ENHANCED MODE****FCC 15.247**

Company:	Nortek	Date:	1/20/2016
EUT:	Numera BT Docking Station	Lab:	R
Models:	S30-0547	Test ENG:	Matt H.
Mode:	BT Enhanced		

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2402	2.40	30.00	-27.60	Peak	
2440	2.51	30.00	-27.49	Peak	
2480	2.30	30.00	-27.70	Peak	



***MAXIMUM PEAK POWER SPECTRAL DENSITY LEVEL IN THE
FUNDAMENTAL EMISSION***

DATA SHEETS



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

PEAK POWER SPECTRAL DENSITY

BLE MODE

FCC 15.247

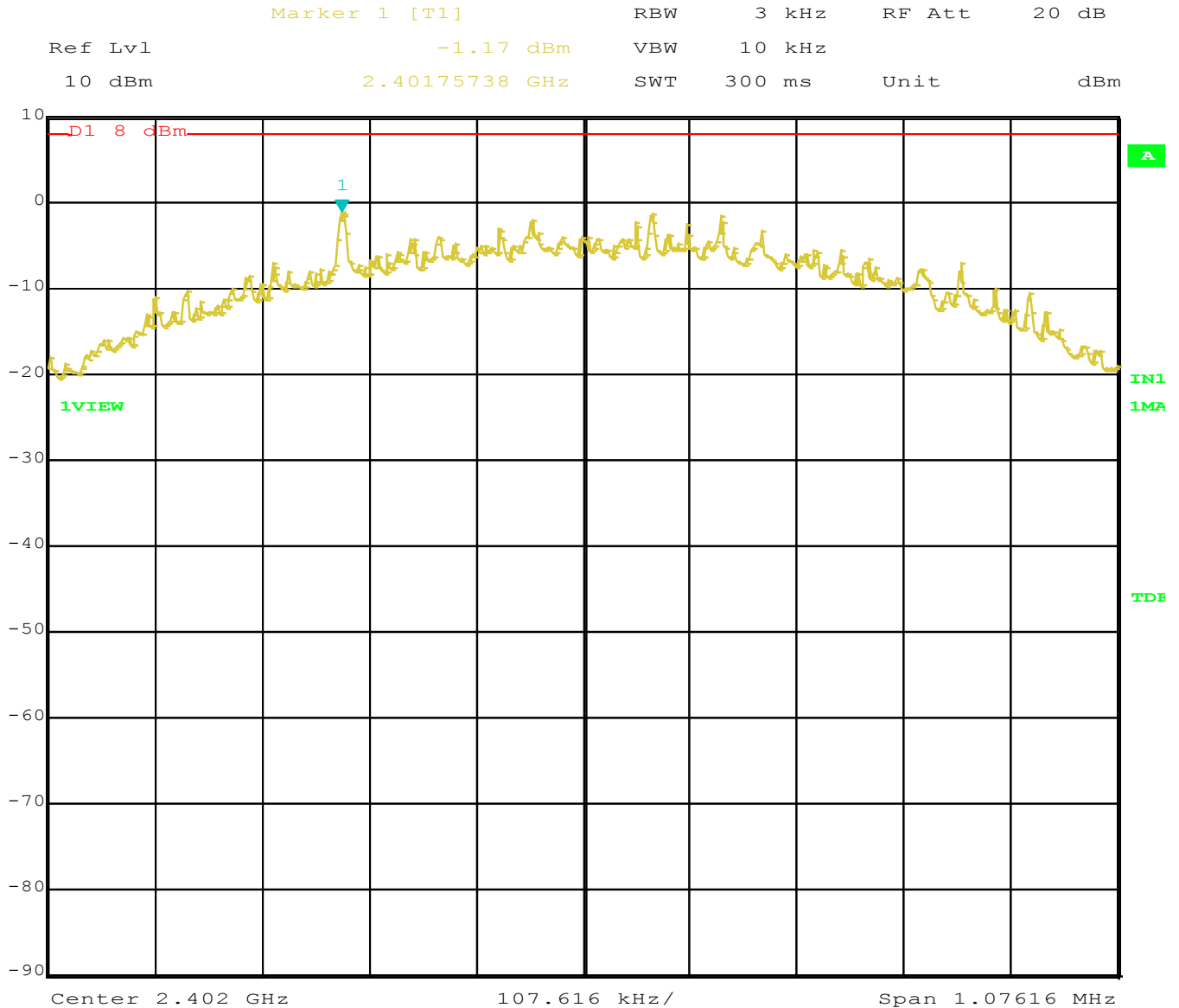
Company:	Nortek	Date:	1/20/2016
EUT:	Numera BT Docking Station	Lab:	P
Models:	S30-0547	Test ENG:	Matt H.
Mode:	BLE		

Compatible Electronics, Inc. FAC-3 (Lab P)

PSD

Freq. (MHz)	Peak (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2402	-1.17	8.00	-9.17	Peak	
2440	-1.80	8.00	-9.80	Peak	
2480	-1.86	8.00	-9.86	Peak	





Title: Numera BT Docking Station
Comment A: PSD
Date: 1.JAN.1997 02:50:55

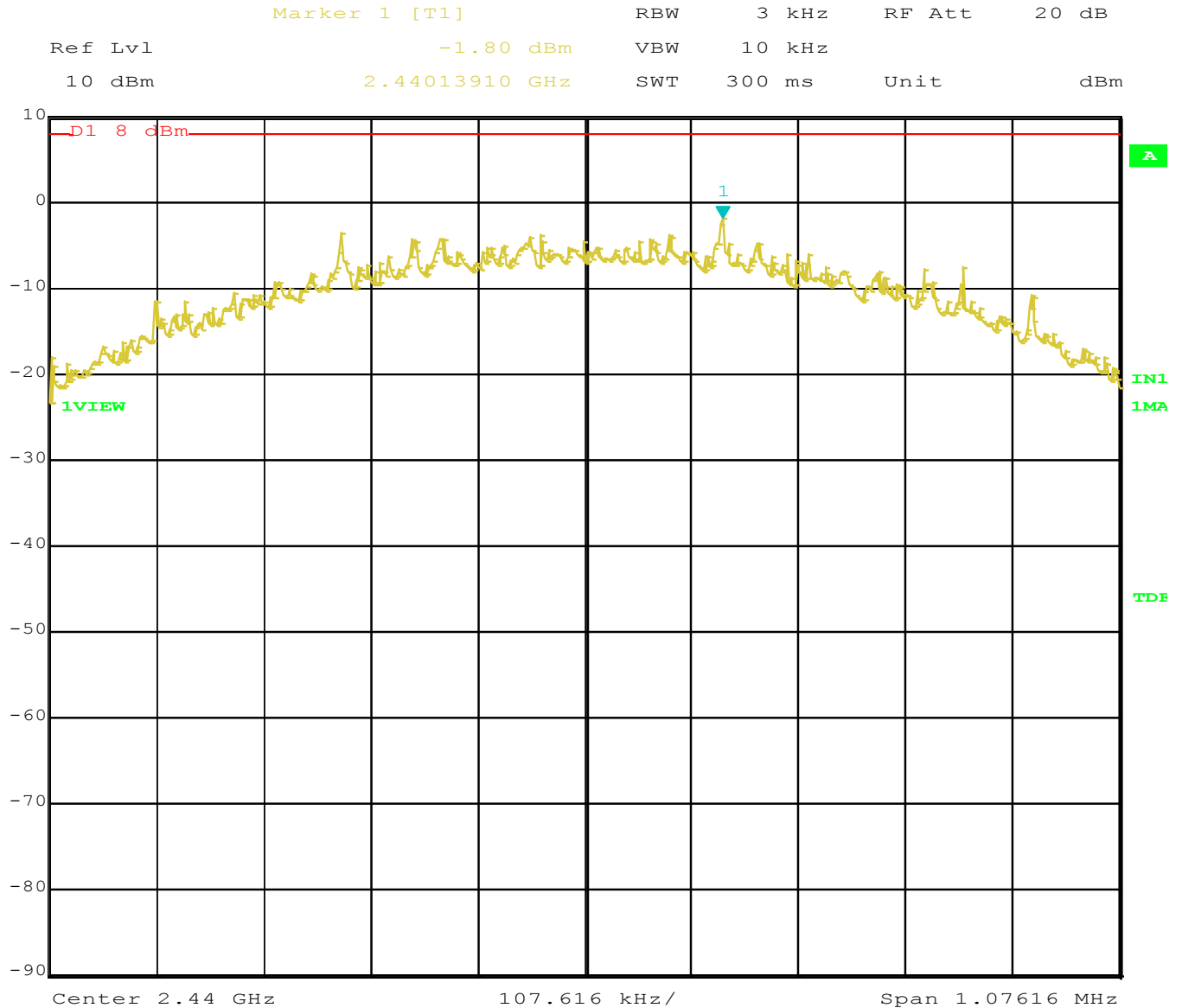


Brea Division
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Agoura Division
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Agoura, CA 91301
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Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



Title: Numera BT Docking Station

Comment A: PSD

Date: 1.JAN.1997 02:52:54

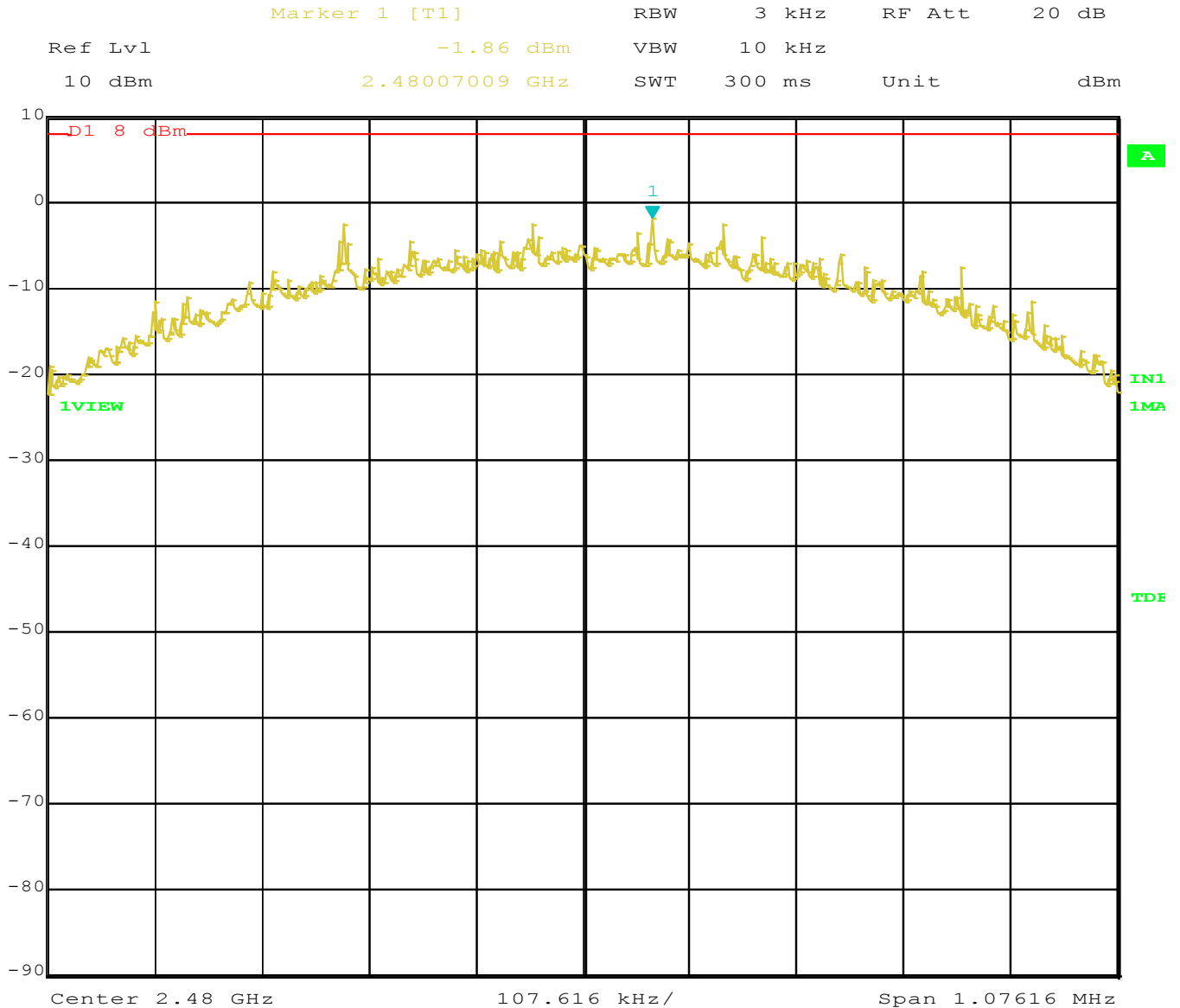


Brea Division
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19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



Title: Numera BT Docking Station
Comment A: PSD
Date: 1.JAN.1997 02:53:35



Brea Division
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Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

PEAK POWER SPECTRAL DENSITY

BT MODE

FCC 15.247

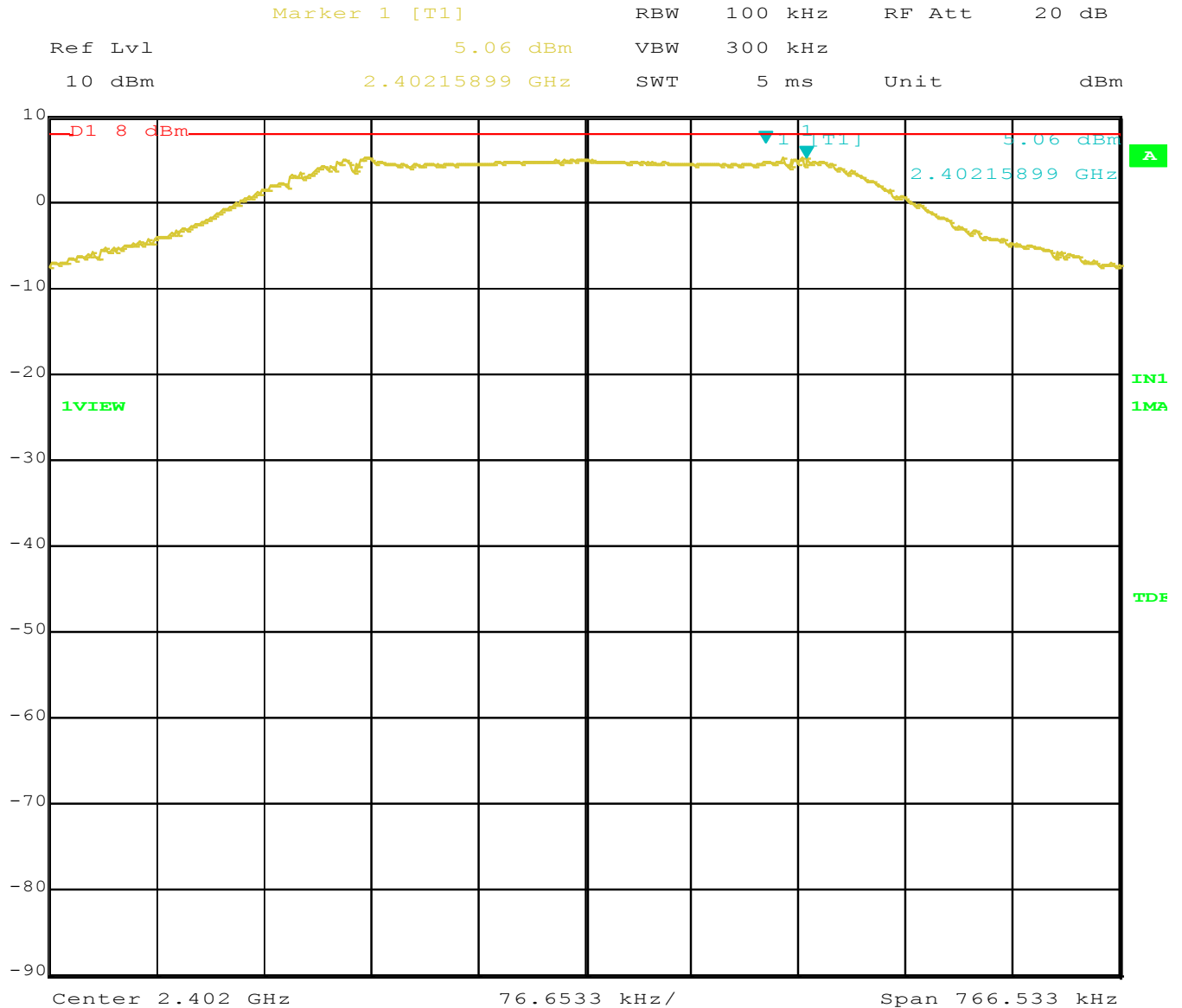
Company:	Nortek	Date:	1/20/2016
EUT:	Numera BT Docking Station	Lab:	P
Model:	S30-0547	Test ENG:	Matt H.
Mode:	BT		

Compatible Electronics, Inc. FAC-3 (Lab P)

PSD

Freq. (MHz)	Peak (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2402	5.06	8.00	-2.94	Peak	
2440	4.98	8.00	-3.02	Peak	
2480	4.28	8.00	-3.72	Peak	





Title: Numera BT Docking Station, BT.

Comment A: PSD

Date: 20.JAN.2016 14:28:53

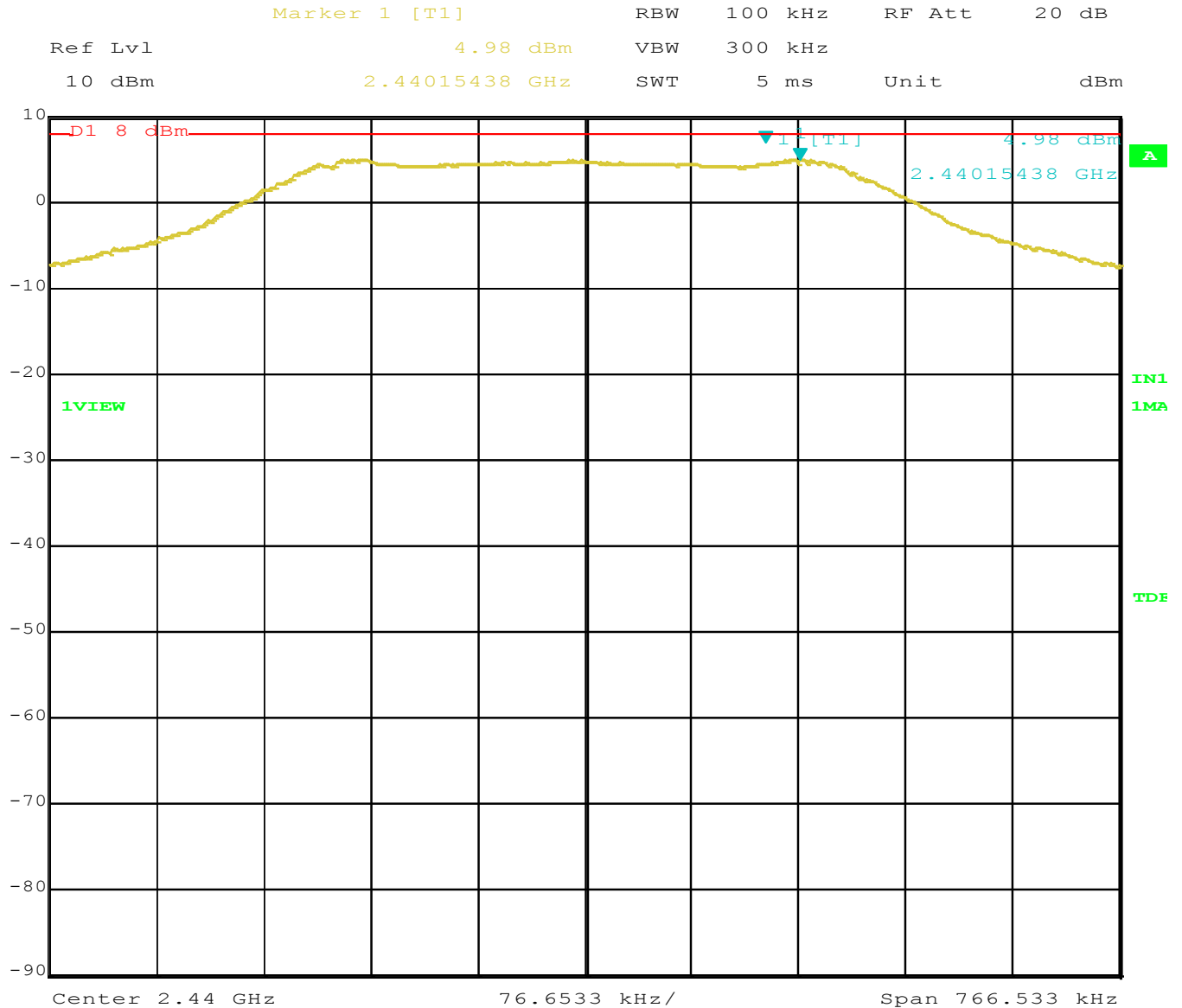


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Lake Forest Division
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Lake Forest, CA 92630
(949) 587-0400



Title: Numera BT Docking Station, BT.

Comment A: PSD

Date: 20.JAN.2016 14:28:07

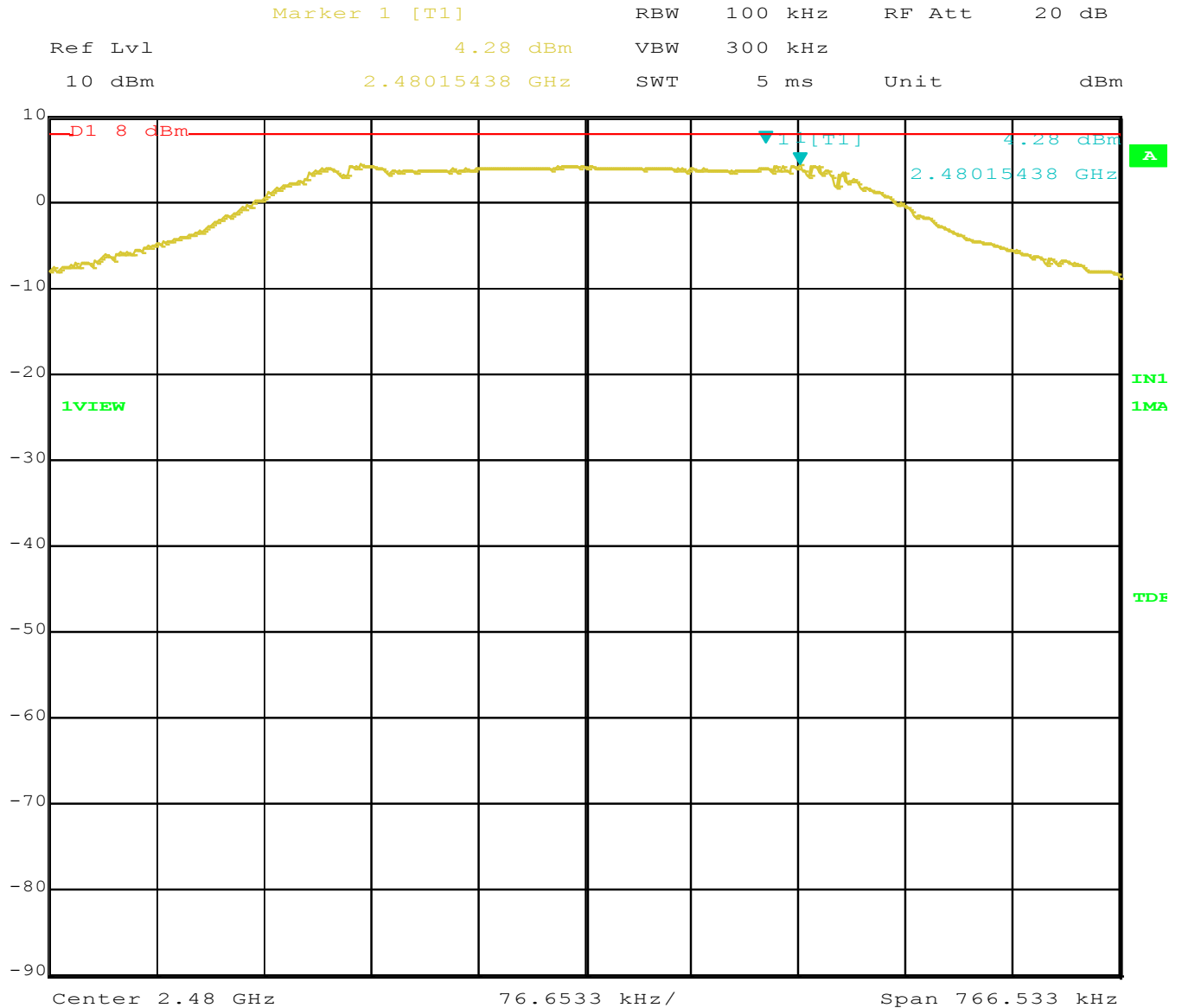


Brea Division
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(949) 589-0700

Lake Forest Division
20621 Pascal Way
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(949) 587-0400



Title: Numera BT Docking Station, BT.

Comment A: PSD

Date: 20.JAN.2016 14:26:39



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Agoura Division
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(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

PEAK POWER SPECTRAL DENSITY

BT ENHANCED MODE

FCC 15.247

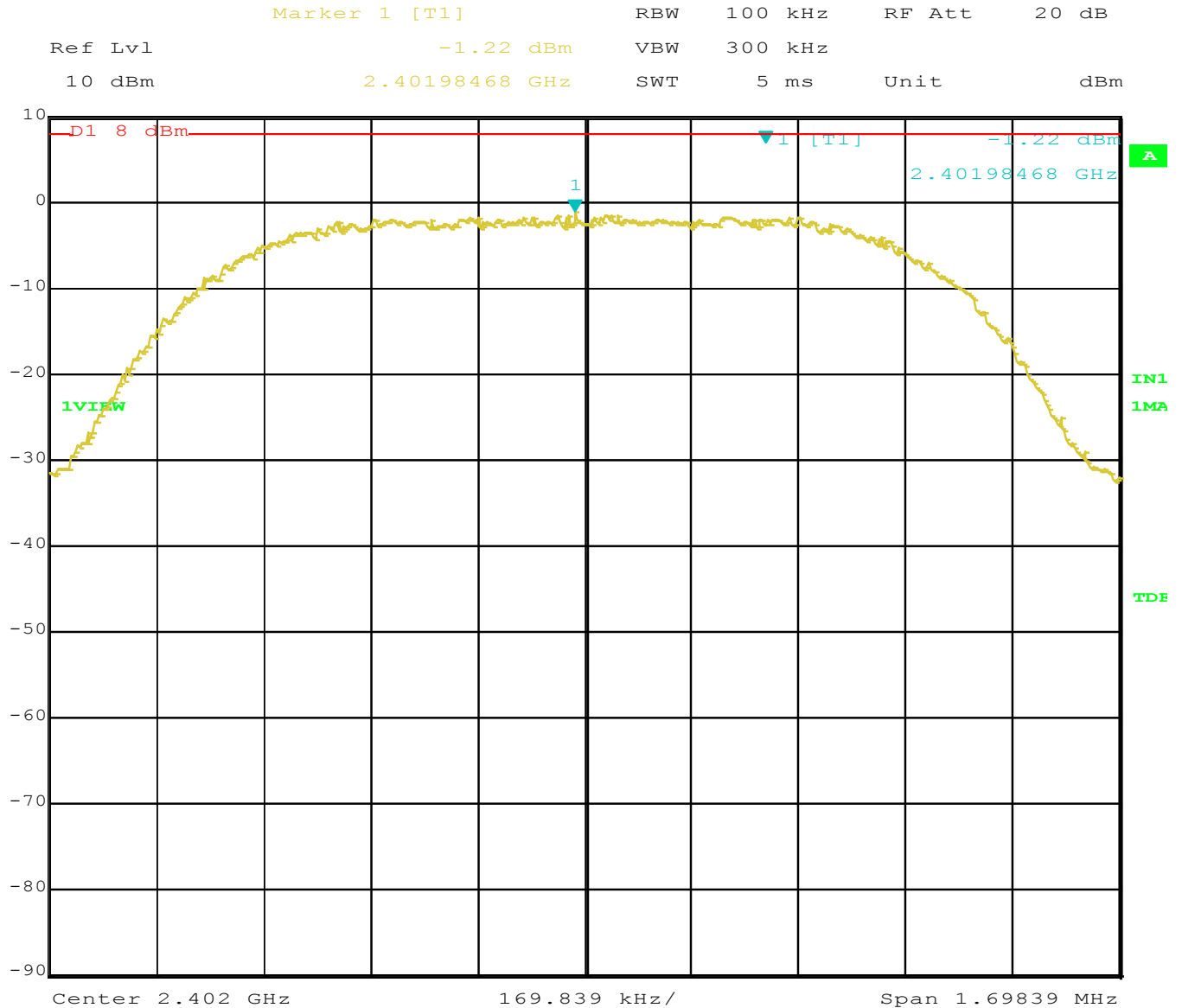
Company:	Nortek	Date:	1/20/2016
EUT:	Numera BT Docking Station	Lab:	P
Model:	S30-0547	Test ENG:	Matt H.
Mode:	BT Enhanced		

Compatible Electronics, Inc. FAC-3 (Lab P)

PSD

Freq. (MHz)	Peak (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2402	-1.22	8.00	-9.22	Peak	
2440	-1.22	8.00	-9.22	Peak	
2480	-1.43	8.00	-9.43	Peak	





Title: Numera BT Docking Station, BT Enhanced.

Comment A: PSD

Date: 20.JAN.2016 14:49:08

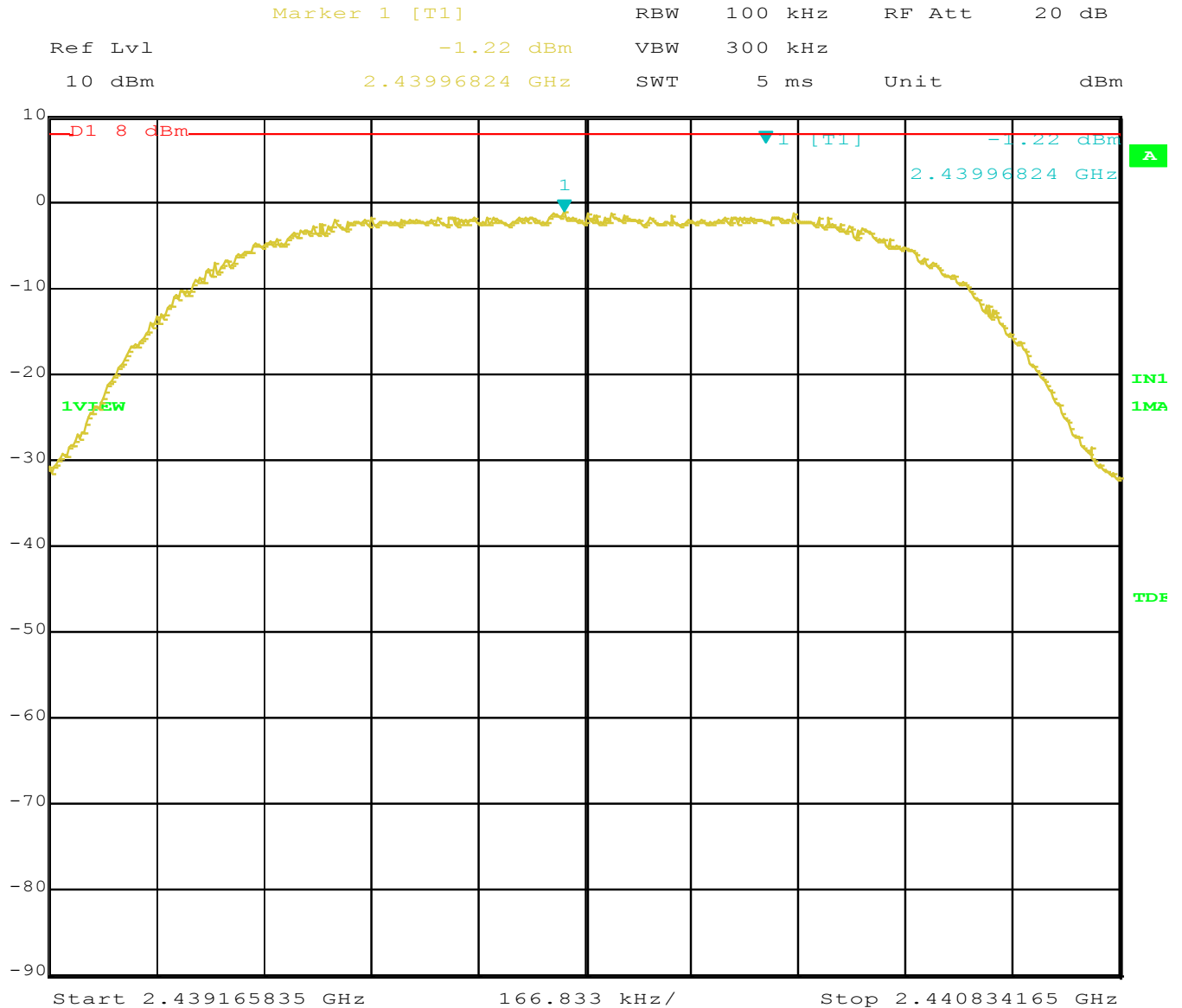


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(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



Title: Numera BT Docking Station, BT Enhanced.

Comment A: PSD

Date: 20.JAN.2016 14:47:55

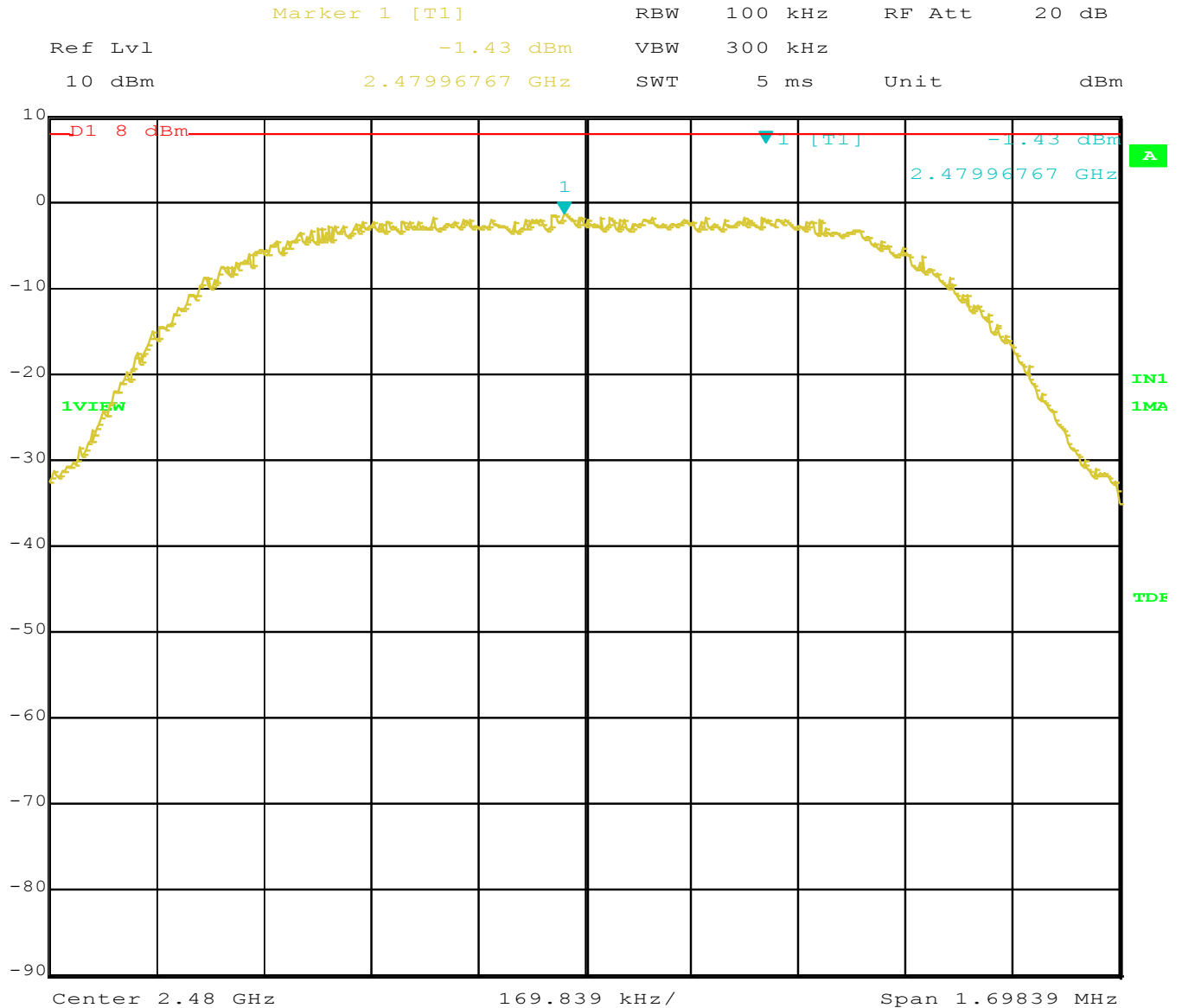


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Title: Numera BT Docking Station, BT Enhanced.

Comment A: PSD

Date: 20.JAN.2016 14:44:38



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***EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS (IN
100KHZ BANDWIDTH) / CONDUCTED***

DATA SHEETS



Brea Division
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Lake Forest Division
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EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

BLE MODE

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BLE

Date: 1/22/2016
Lab: R
Test ENG: Matt Harrison

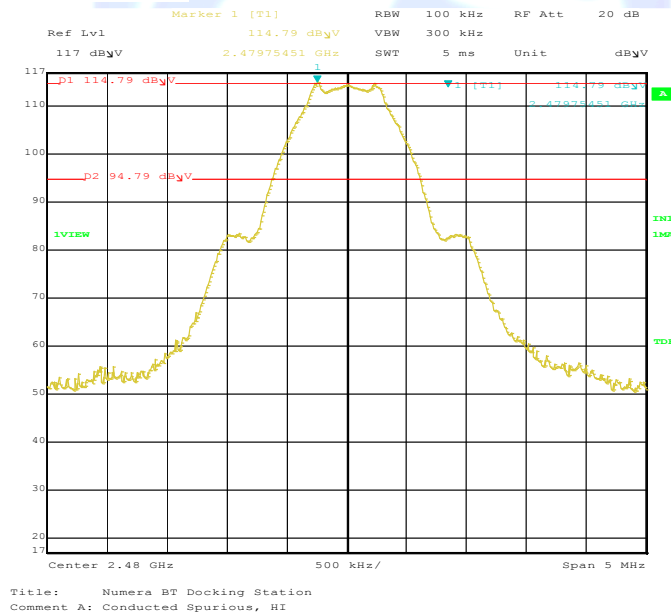
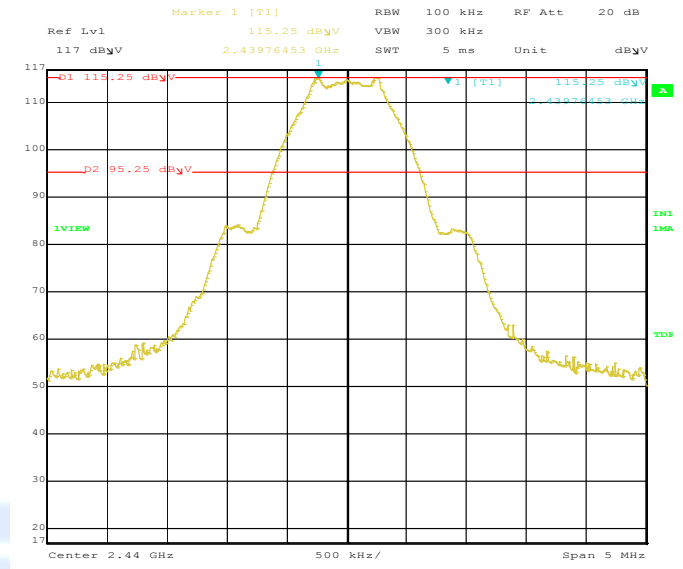
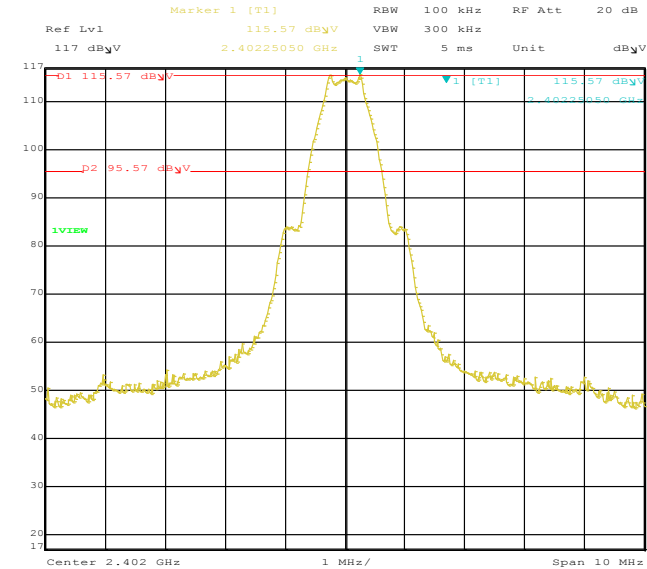
Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Peak / QP / Avg	Comments
8206	50.14	95.57	-45.43	Peak	Low Channel
24400	33.82	95.25	-61.43	Peak	Mid Channel
9760	33.38	95.25	-61.87	Peak	Mid Channel

3 Highest for all BLE mode measurements

BLE MODE

Reference Level Measurements



EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

BT MODE

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT

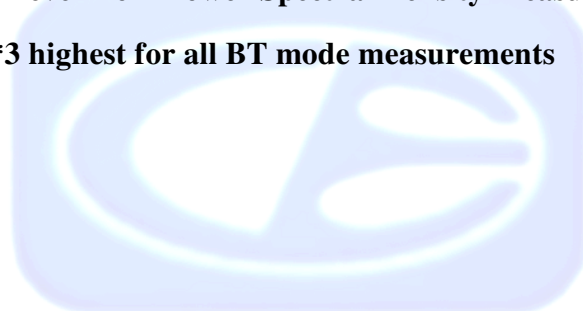
Date: 1/22/2016
Lab: R
Test ENG: Matt Harrison

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Peak / QP / Avg	Comments
7206	49.41	92.06	-42.65	Peak	Low Channel
16814	34.50	92.06	-57.56	Peak	Low Channel
17360	26.72	91.28	-64.56	Peak	High Channel

***Reference Level from Power Spectral Density Measurement**

****3 highest for all BT mode measurements**



EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS***BT ENHANCED MODE*****FCC 15.247**

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT Enhanced

Date: 1/22/2016
Lab: R
Test ENG: Matt Harrison

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Peak / QP / Avg	Comments
7206.00	36.79	85.78	-48.89	Peal	Low Channel
9760.00	39.43	85.78	-46.35	Peak	Mid Channel
14640.00	24.44	85.78	-61.34	Peak	Mid Channel

***Reference Level from Power Spectral Density Measurement**

****3 highest for all BT Enhanced mode measurements**



***EMISSIONS IN RESTRICTED FREQUENCY BANDS (RADIATED
FIELD STRENGTH)***

DATA SHEETS



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(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS BLE Mode, Low Channel, Horizontal & Vertical

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BLE
Duty Cycle Correction Factor: -20.00

Date: 1/22/2016
Lab: P
Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804.00	60.07	H	73.98	-13.91	Peak	1.19	215	In Restricted Band
4804.00	40.07	H	53.98	-13.91	Avg	1.19	215	
12010.00	55.95	H	73.98	-18.03	Peak	3.09	0	In Restricted Band
12010.00	35.95	H	53.98	-18.03	Avg	3.09	0	
19216.00	--	H	73.98	--	Peak	--	--	In Restricted Band
19216.00	--	H	53.98	--	Avg	--	--	No Emissions Found
4804.00	62.03	V	73.98	-11.95	Peak	1.88	226	In Restricted Band
4804.00	42.03	V	53.98	-11.95	Avg	1.88	226	
12010.00	59.36	V	73.98	-14.62	Peak	1.11	283	In Restricted Band
12010.00	39.36	V	53.98	-14.62	Avg	1.11	283	
19216.00	--	V	73.98	--	Peak	--	--	In Restricted Band
19216.00	--	V	53.98	--	Avg	--	--	No Emissions Found

Test distance
3 meter



HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS BLE Mode, Mid Channel, Horizontal & Vertical

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BLE
Duty Cycle Correction Factor: -20.00

Date: 1/22/2016
Lab: P
Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880.00	67.76	H	73.98	-6.22	Peak	1.32	233	In Restricted Band
4880.00	47.76	H	53.98	-6.22	Avg	1.32	233	
7320.00	58.59	H	73.98	-15.39	Peak	1.24	349	In Restricted Band
7320.00	38.59	H	53.98	-15.39	Avg	1.24	349	
12200.00	57.64	H	73.98	-16.34	Peak	1.31	360	In Restricted Band
12200.00	37.64	H	53.98	-16.34	Avg	1.31	360	
19520.00	--	H	73.98	--	Peak	--	--	In Restricted Band
19520.00	--	H	53.98	--	Avg	--	--	No Emissions Found
4880.00	70.20	V	73.98	-3.78	Peak	1.76	136	In Restricted Band
4880.00	50.20	V	53.98	-3.78	Avg	1.76	136	
7320.00	59.92	V	73.98	-14.06	Peak	2.76	219	In Restricted Band
7320.00	39.92	V	53.98	-14.06	Avg	2.76	219	
12200.00	60.59	V	73.98	-13.39	Peak	1.00	281	In Restricted Band
12200.00	40.59	V	53.98	-13.39	Avg	1.00	281	
19520.00	--	V	73.98	--	Peak	--	--	In Restricted Band
19520.00	--	V	53.98	--	Avg	--	--	No emission found

Test distance
3 meter



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(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS

BLE Mode, High Channel, Horizontal & Vertical

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BLE
Duty Cycle Correction Factor: -20.00

Date: 1/22/2016
Lab: P
Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4960.00	57.75	H	73.98	-16.23	Peak	1.59	93	In Restricted Band
4960.00	37.75	H	53.98	-16.23	Avg	1.59	93	
7440.00	56.23	H	73.98	-17.75	Peak	1.08	357	In Restricted Band
7440.00	36.23	H	53.98	-17.75	Avg	1.08	357	
12400.00	56.61	H	73.98	-17.37	Peak	2.06	360	In Restricted Band
12400.00	36.61	H	53.98	-17.37	Avg	2.06	360	
19840.00	--	H	73.98	--	Peak	--	--	In Restricted Band
19840.00	--	H	53.98	--	Avg	--	--	No Emissions Found
22320.00	--	H	73.98	--	Peak	--	--	In Restricted Band
22320.00	--	H	53.98	--	Avg	--	--	No Emissions Found
4960.00	59.65	V	73.98	-14.33	Peak	1.54	134	In Restricted Band
4960.00	39.65	V	53.98	-14.33	Avg	1.54	134	
7440.00	59.24	V	73.98	-14.74	Peak	1.14	219	In Restricted Band
7440.00	39.24	V	53.98	-14.74	Avg	1.14	219	
12400.00	56.47	V	73.98	-17.51	Peak	1.04	279	In Restricted Band
12400.00	36.47	V	53.98	-17.51	Avg	1.04	279	
19840.00	--	V	73.98	--	Peak	--	--	In Restricted Band
19840.00	--	V	53.98	--	Avg	--	--	No Emissions Found
22320.00	--	V	73.98	--	Peak	--	--	In Restricted Band
22320.00	--	V	53.98	--	Avg	--	--	No Emissions Found

Test distance
3 meter

Brea Division
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HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS BT Mode, Low Channel, Horizontal & Vertical

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT
Duty Cycle Correction Factor: -20.00

Date: 1/22/2016
Lab: P
Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804.00	45.00	H	73.98	-28.98	Peak	1.94	216	In Restricted Band
4804.00	25.00	H	53.98	-28.98	Avg	1.94	216	
12010.00	--	H	73.98	--	Peak	--	--	In Restricted Band
12010.00	--	H	53.98	--	Avg	--	--	No emissions found
19216.00	--	H	73.98	--	Peak	--	--	In Restricted Band
19216.00	--	H	53.98	--	Avg	--	--	No Emissions Found
4804.00	47.13	V	73.98	-26.85	Peak	1.46	226	In Restricted Band
4804.00	27.13	V	53.98	-26.85	Avg	1.46	226	
12010.00	--	V	73.98	--	Peak	--	--	In Restricted Band
12010.00	--	V	53.98	--	Avg	--	--	No emissions found
19216.00	--	V	73.98	--	Peak	--	--	In Restricted Band
19216.00	--	V	53.98	--	Avg	--	--	No Emissions Found

Test distance
3 meter



HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS BT Mode, Mid Channel, Horizontal & Vertical

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT
Duty Cycle Correction Factor: -20.00

Date: 1/22/2016
Lab: P
Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880.00	52.80	H	73.98	-21.18	Peak	1.35	233	In Restricted Band
4880.00	32.80	H	53.98	-21.18	Avg	1.35	233	
7320.00	54.16	H	73.98	-19.82	Peak	1.14	352	In Restricted Band
7320.00	34.16	H	53.98	-19.82	Avg	1.14	352	
12200.00	58.56	H	73.98	-15.42	Peak	1.20	287	In Restricted Band
12200.00	38.56	H	53.98	-15.42	Avg	1.20	287	
19520.00	--	H	73.98	--	Peak	--	--	In Restricted Band
19520.00	--	H	53.98	--	Avg	--	--	No Emissions Found
4880.00	54.53	V	73.98	-19.45	Peak	1.77	137	In Restricted Band
4880.00	34.53	V	53.98	-19.45	Avg	1.77	137	
7320.00	56.23	V	73.98	-17.75	Peak	1.37	223	In Restricted Band
7320.00	36.23	V	53.98	-17.75	Avg	1.37	223	
12200.00	56.60	V	73.98	-17.38	Peak	1.10	175	In Restricted Band
12200.00	36.60	V	53.98	-17.38	Avg	1.10	175	
19520.00	--	V	73.98	--	Peak	--	--	In Restricted Band
19520.00	--	V	53.98	--	Avg	--	--	No emission found

Test distance
3 meter



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(949) 587-0400

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS

BT Mode, High Channel, Horizontal & Vertical

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT
Duty Cycle Correction Factor: -20.00

Date: 1/22/2016
Lab: P
Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4960.00	51.57	H	73.98	-22.41	Peak	1.64	259	In Restricted Band
4960.00	31.57	H	53.98	-22.41	Avg	1.64	259	
7440.00	54.15	H	73.98	-19.83	Peak	1.24	0	In Restricted Band
7440.00	34.15	H	53.98	-19.83	Avg	1.24	0	
12400.00	57.65	H	73.98	-16.33	Peak	3.23	360	In Restricted Band
12400.00	37.65	H	53.98	-16.33	Avg	3.23	360	
19840.00	--	H	73.98	--	Peak	--	--	In Restricted Band
19840.00	--	H	53.98	--	Avg	--	--	No Emissions Found
22320.00	--	H	73.98	--	Peak	--	--	In Restricted Band
22320.00	--	H	53.98	--	Avg	--	--	No Emissions Found
4960.00	53.93	V	73.98	-20.05	Peak	1.67	135	In Restricted Band
4960.00	33.93	V	53.98	-20.05	Avg	1.67	135	
7440.00	55.00	V	73.98	-18.98	Peak	1.00	221	In Restricted Band
7440.00	35.00	V	53.98	-18.98	Avg	1.00	221	
12400.00	60.76	V	73.98	-13.22	Peak	1.22	279	In Restricted Band
12400.00	40.76	V	53.98	-13.22	Avg	1.22	279	
19840.00	--	V	73.98	--	Peak	--	--	In Restricted Band
19840.00	--	V	53.98	--	Avg	--	--	No Emissions Found
22320.00	--	V	73.98	--	Peak	--	--	In Restricted Band
22320.00	--	V	53.98	--	Avg	--	--	No Emissions Found

Test distance
3 meter

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS BT Enhanced, Low Channel, Horizontal & Vertical

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT Enhanced
Duty Cycle Correction Factor: -20.00

Date: 1/22/2016
Lab: P
Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804.00	49.13	H	73.98	-24.85	Peak	1.30	234	In Restricted Band
4804.00	29.13	H	53.98	-24.85	Avg	1.30	234	
12010.00	--	H	73.98	--	Peak	--	--	In Restricted Band
12010.00	--	H	53.98	--	Avg	--	--	No emissions found
19216.00	--	H	73.98	--	Peak	--	--	In Restricted Band
19216.00	--	H	53.98	--	Avg	--	--	No Emissions Found
4804.00	49.88	V	73.98	-24.10	Peak	1.90	210	In Restricted Band
4804.00	29.88	V	53.98	-24.10	Avg	1.90	210	
12010.00	--	V	73.98	--	Peak	--	--	In Restricted Band
12010.00	--	V	53.98	--	Avg	--	--	No emissions found
19216.00	--	V	73.98	--	Peak	--	--	In Restricted Band
19216.00	--	V	53.98	--	Avg	--	--	No Emissions Found

Test distance
3 meter



HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS BT Enhanced, Mid Channel, Horizontal & Vertical

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT Enhanced
Duty Cycle Correction Factor: -20.00

Date: 1/22/2016
Lab: P
Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880.00	52.17	H	73.98	-21.81	Peak	1.43	233	In Restricted Band
4880.00	32.17	H	53.98	-21.81	Avg	1.43	233	
7320.00	--	H	73.98	--	Peak	--	--	In Restricted Band
7320.00	--	H	53.98	--	Avg	--	--	No Emissions Found
12200.00	--	H	73.98	--	Peak	--	--	In Restricted Band
12200.00	--	H	53.98	--	Avg	--	--	No Emissions Found
19520.00	--	H	73.98	--	Peak	--	--	In Restricted Band
19520.00	--	H	53.98	--	Avg	--	--	No Emissions Found
4880.00	53.25	V	73.98	-20.73	Peak	1.81	211	In Restricted Band
4880.00	33.25	V	53.98	-20.73	Avg	1.81	211	
7320.00	--	V	73.98	--	Peak	--	--	In Restricted Band
7320.00	--	V	53.98	--	Avg	--	--	No emission found
12200.00	--	V	73.98	--	Peak	--	--	In Restricted Band
12200.00	--	V	53.98	--	Avg	--	--	No emission found
19520.00	--	V	73.98	--	Peak	--	--	In Restricted Band
19520.00	--	V	53.98	--	Avg	--	--	No emission found

Test distance
3 meter



Brea Division
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Agoura Division
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Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS

BT Enhanced, High Channel, Horizontal & Vertical

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT Enhanced
Duty Cycle Correction Factor: -20.00

Date: 1/22/2016

Lab: P

Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4960.00	52.09	H	73.98	-21.89	Peak	1.62	237	In Restricted Band
4960.00	32.09	H	53.98	-21.89	Avg	1.62	237	
7440.00	--	H	73.98	--	Peak	--	--	In Restricted Band
7440.00	--	H	53.98	--	Avg	--	--	No emission found
12400.00	--	H	73.98	--	Peak	--	--	In Restricted Band
12400.00	--	H	53.98	--	Avg	--	--	No Emissions Found
19840.00	--	H	73.98	--	Peak	--	--	In Restricted Band
19840.00	--	H	53.98	--	Avg	--	--	No Emissions Found
22320.00	--	H	73.98	--	Peak	--	--	In Restricted Band
22320.00	--	H	53.98	--	Avg	--	--	No Emissions Found
4960.00	54.19	V	73.98	-19.79	Peak	1.57	137	In Restricted Band
4960.00	34.19	V	53.98	-19.79	Avg	1.57	137	
7440.00	--	V	73.98	--	Peak	--	--	In Restricted Band
7440.00	--	V	53.98	--	Avg	--	--	No emission found
12400.00	--	V	73.98	--	Peak	--	--	In Restricted Band
12400.00	--	V	53.98	--	Avg	--	--	No Emissions Found
19840.00	--	V	73.98	--	Peak	--	--	In Restricted Band
19840.00	--	V	53.98	--	Avg	--	--	No Emissions Found
22320.00	--	V	73.98	--	Peak	--	--	In Restricted Band
22320.00	--	V	53.98	--	Avg	--	--	No Emissions Found

Test distance
3 meter

Brea Division
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(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



***EMISSIONS RADIATED OUTSIDE OF THE FUNDAMENTAL
FREQUENCY BAND AT BAND EDGES***

DATA SHEETS



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Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

BLE Mode

BAND EDGES- VERTICAL

FCC 15.247

Company: Nortek

EUT: Numera BT Docking Station

Model: S30-0547

Mode: BLE

Date: 1/21/2016

Lab: P

Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBμV/m)	Pol	Limit (dBμV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402.00	97.11	V	--	--	Peak	1.65	219	Fundamental of Low Channel
								X Axis
2400.00	73.67	V	77.11	-3.44	Delta	1.65	219	From Peak
2386.43	50.26	V	73.98	-23.72	Peak	1.65	219	No Marker Delta Method Used
2386.43	--	V	53.98	--	Avg	--	--	
2480.00	99.42	V	--	--	Peak	1.19	208	Fundamental of High Channel
2483.50	55.68	V	73.98	-18.30	Peak	1.19	208	No Marker Delta Method Used
2483.50	37.88	V	53.98	-16.10	Avg	1.19	208	X Axis

Test distance

3 meter



BAND EDGES- HORIZONTAL

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BLE

Date: 1/21/2016
Lab: P
Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dB μ V/m)	Pol	Limit (dB μ V/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402.00	101.48	H	--	--	Peak	1.03	360	Fundamental of Low Channel
								X Axis
2400.00	78.06	H	81.48	-3.42	Delta	1.03	360	
2389.38	51.99	H	53.98	-1.99	Peak	1.03	360	No Marker Delta Method Used
2389.38	--	H	53.98	--	Avg	--	--	
2480.00	102.89	H	--	--	Peak	1.68	346	Fundamental of High Channel
2483.50	58.40	H	73.98	-15.58	Peak	1.68	346	No Marker Delta Method Used
2483.50	39.29	H	53.98	-14.69	Avg	1.68	346	X Axis

Test distance
3 meter



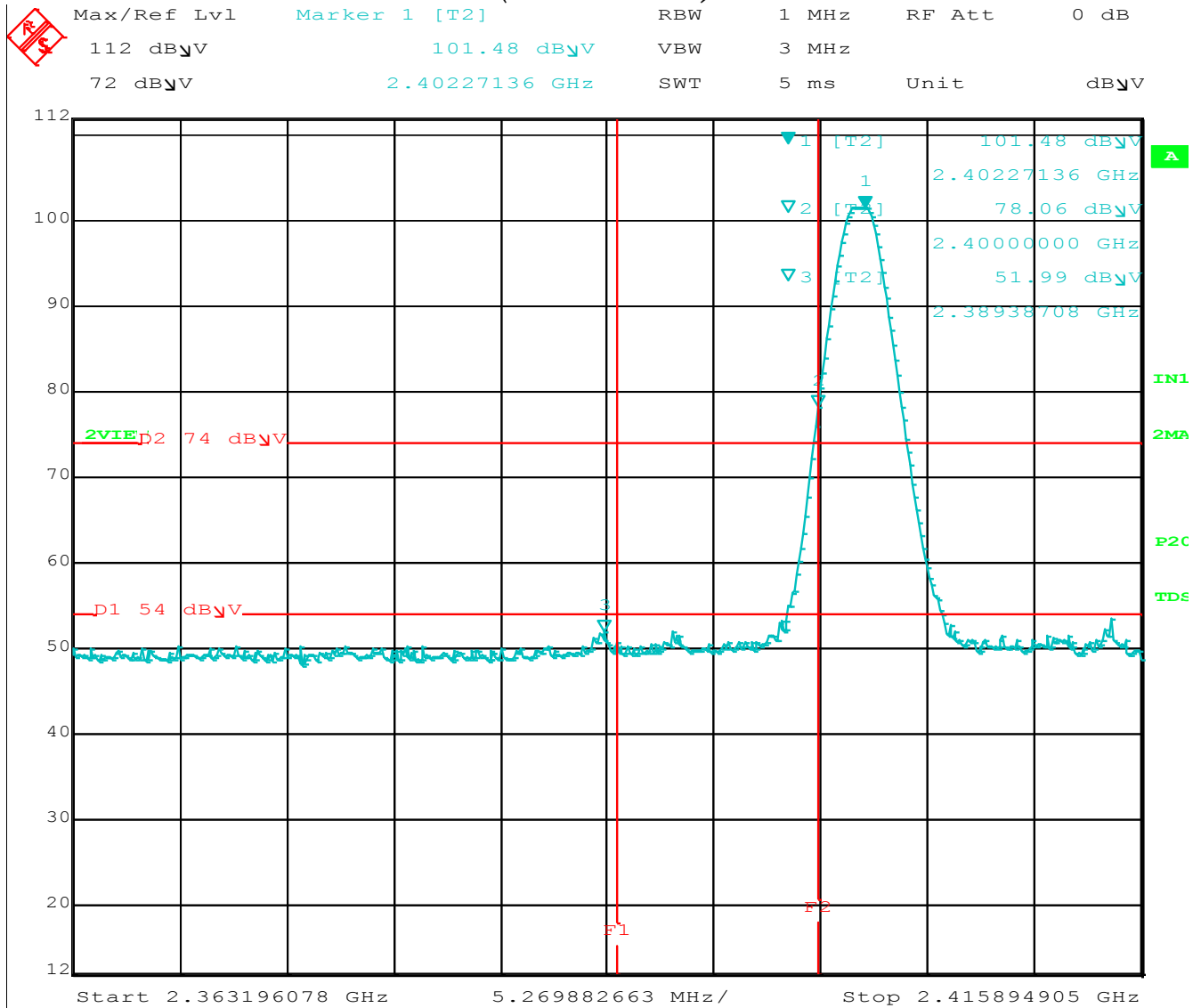
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
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(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

LOWER BAND EDGE (Horizontal)



Title: NUMERA BT DOCKING STATION, BLE.

Comment A: LBE



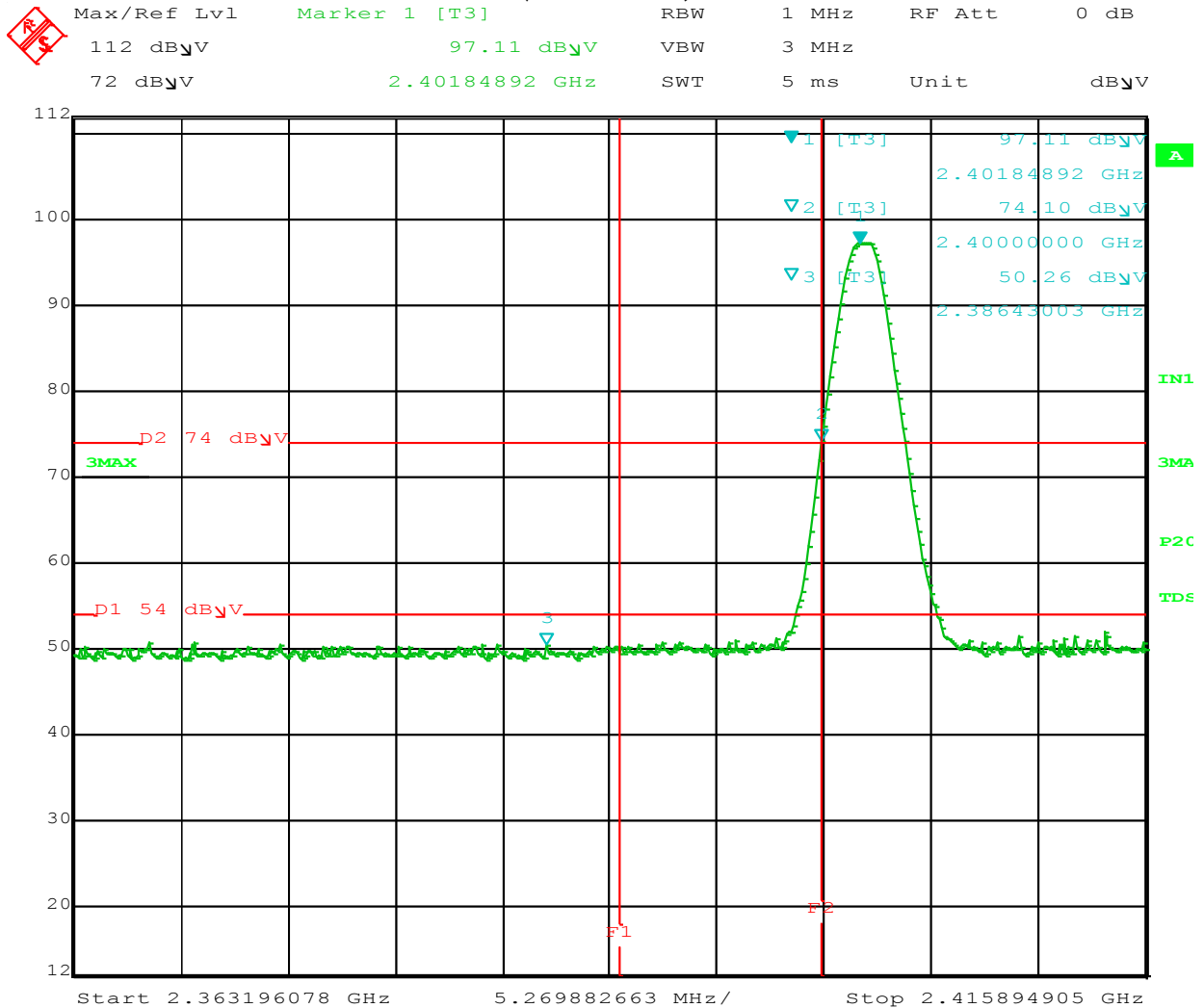
Brea Division
114 Olinda Drive
Brea, CA 92823
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2337 Troutdale Drive
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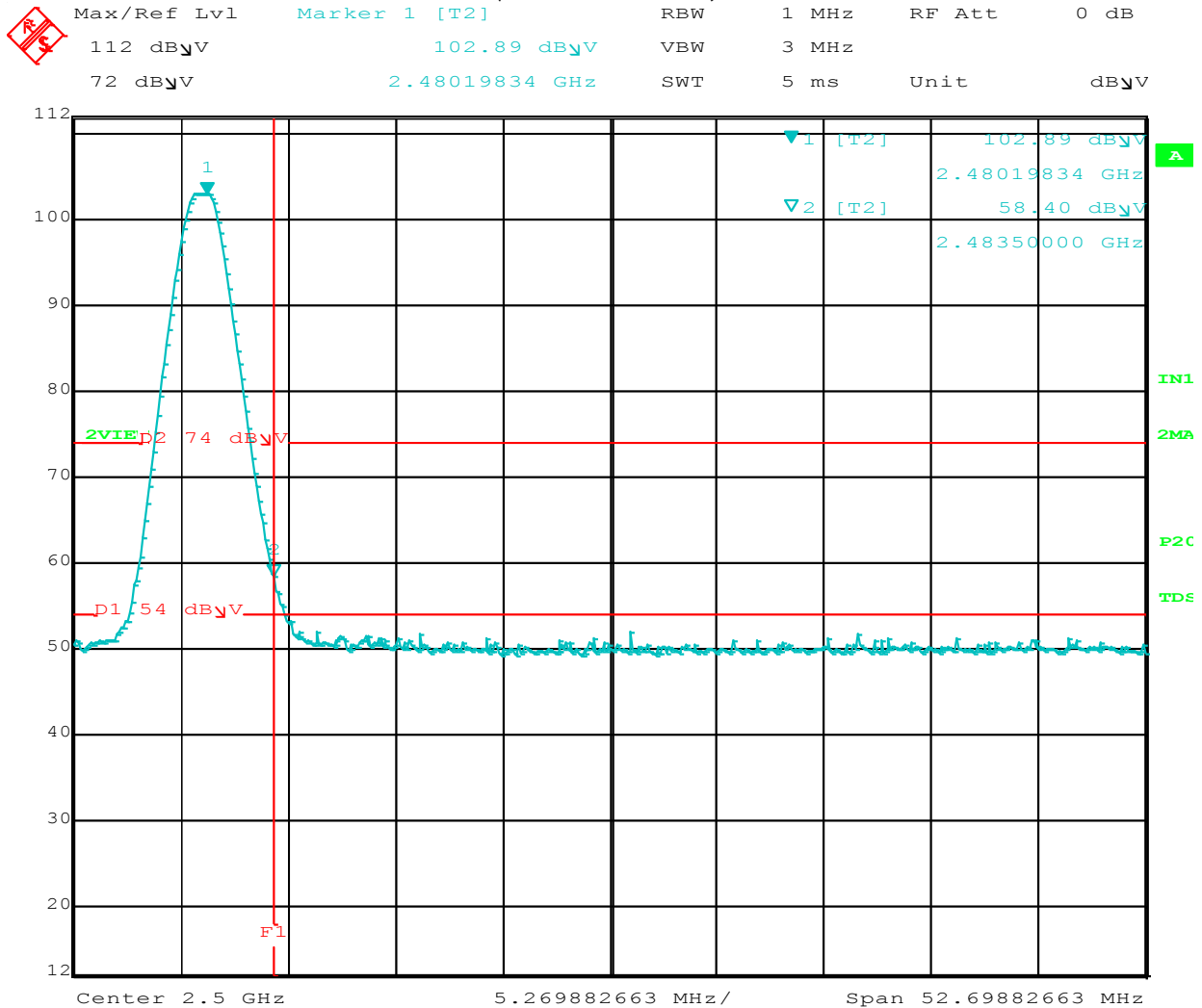
LOWER BAND EDGE (Vertical)



Title: NUMERA BT DOCKING STATION, BLE.
Comment A: LBEV



UPPER BAND EDGE (Horizontal)



Title: NUMERA BT DOCKING STATION, BLE.
Comment A: UBEH



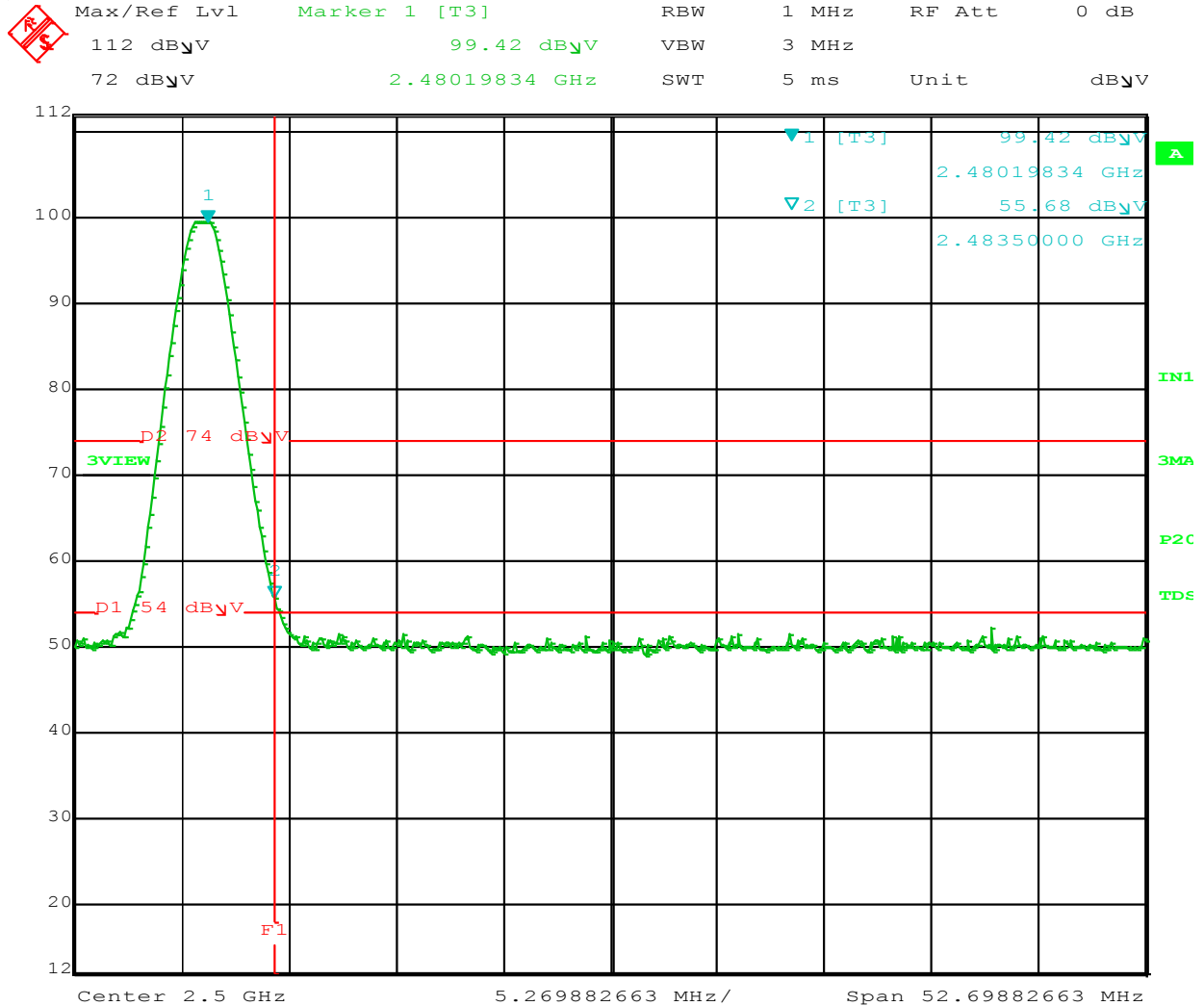
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Lake Forest Division
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UPPER BAND EDGE (Vertical)



Title: NUMERA BT DOCKING STATION, BLE.

Comment A: UBEV



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(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

BT Mode

BAND EDGES- VERTICAL

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT

Date: 1/21/2016
Lab: P
Test ENG: Torey Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dB μ V/m)	Pol	Limit (dB μ V/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402.00	88.83	V	--	--	Peak	1.00	138	Fundamental of Low Channel
								X Axis
2400.00	64.26	V	68.83	-4.57	Delta	1.00	138	From Peak
2391.45	51.25	V	73.98	-22.73	Peak	1.00	138	No Marker Delta Method Used
2391.45	--	V	53.98	--	Avg	--	--	
2480.00	95.44	V	--	--	Peak	1.22	206	Fundamental of High Channel
2483.50	51.53	V	73.98	-22.45	Peak	1.22	206	No Marker Delta Method Used
2483.50	36.17	V	53.98	-17.81	Avg	1.22	206	X Axis

Test distance
3 meter



BAND EDGES- HORIZONTAL

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT

Date: 1/21/2016
Lab: P
Test ENG: Torey Oliver

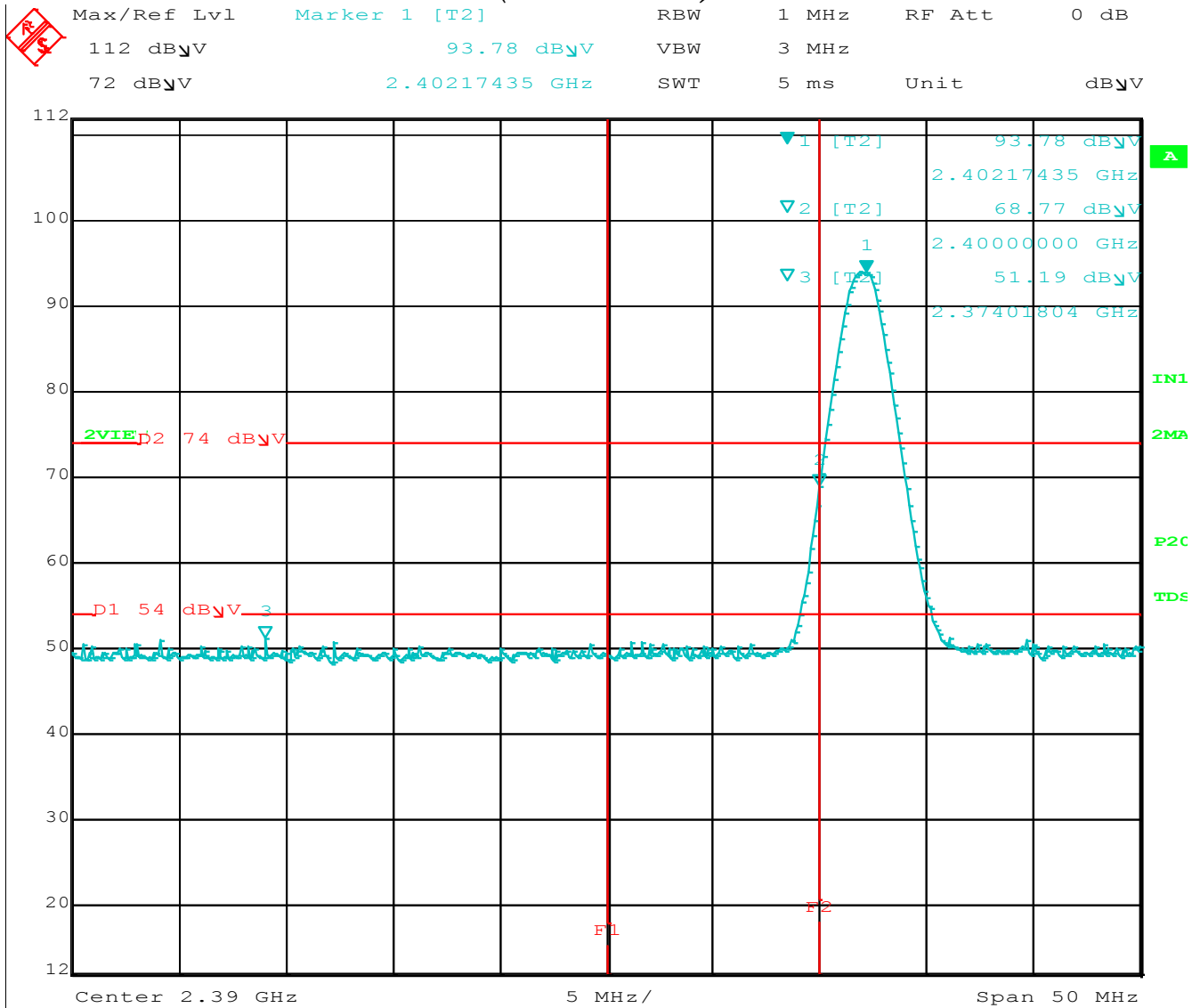
Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBμV/m)	Pol	Limit (dBμV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402.00	93.78	H	--	--	Peak	2.20	353	Fundamental of Low Channel
								X Axis
2400.00	68.77	H	73.78	-5.01	Delta	2.20	353	
2374.02	51.19	H	73.98	-22.79	Peak	2.20	353	No Marker Delta Method Used
2374.02	--	H	53.98	--	Avg	--	--	
2480.00	100.13	H	--	--	Peak	1.69	351	Fundamental of High Channel
2483.50	53.82	H	73.98	-20.16	Peak	1.69	351	No Marker Delta Method Used
2483.50	36.88	H	53.98	-17.10	Avg	1.69	351	X Axis

Test distance
3 meter



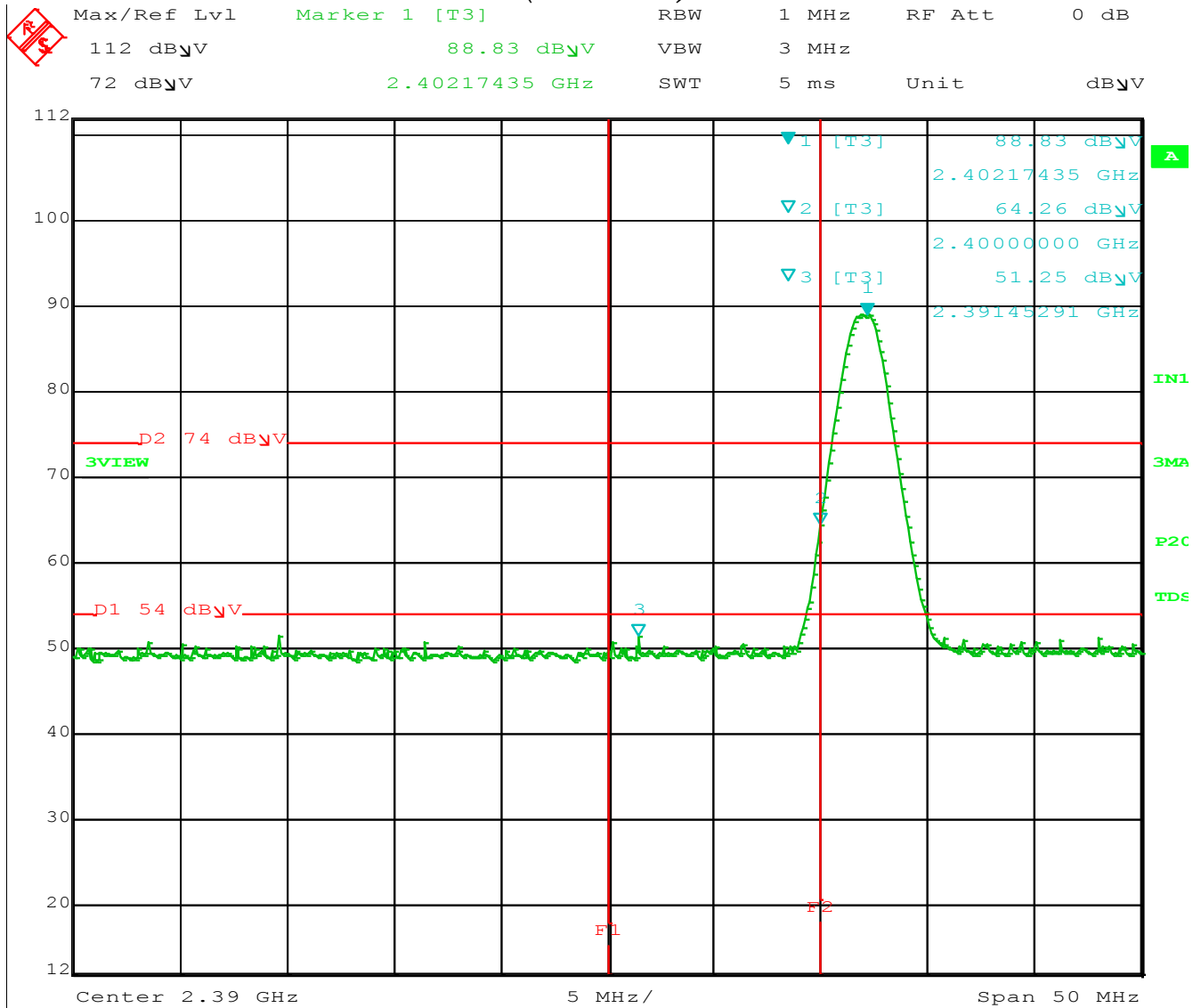
LOWER BAND EDGE (Horizontal)



Title: BT
Comment A: LBEH



LOWER BAND EDGE (Vertical)



Title: BT
Comment A: LBEV



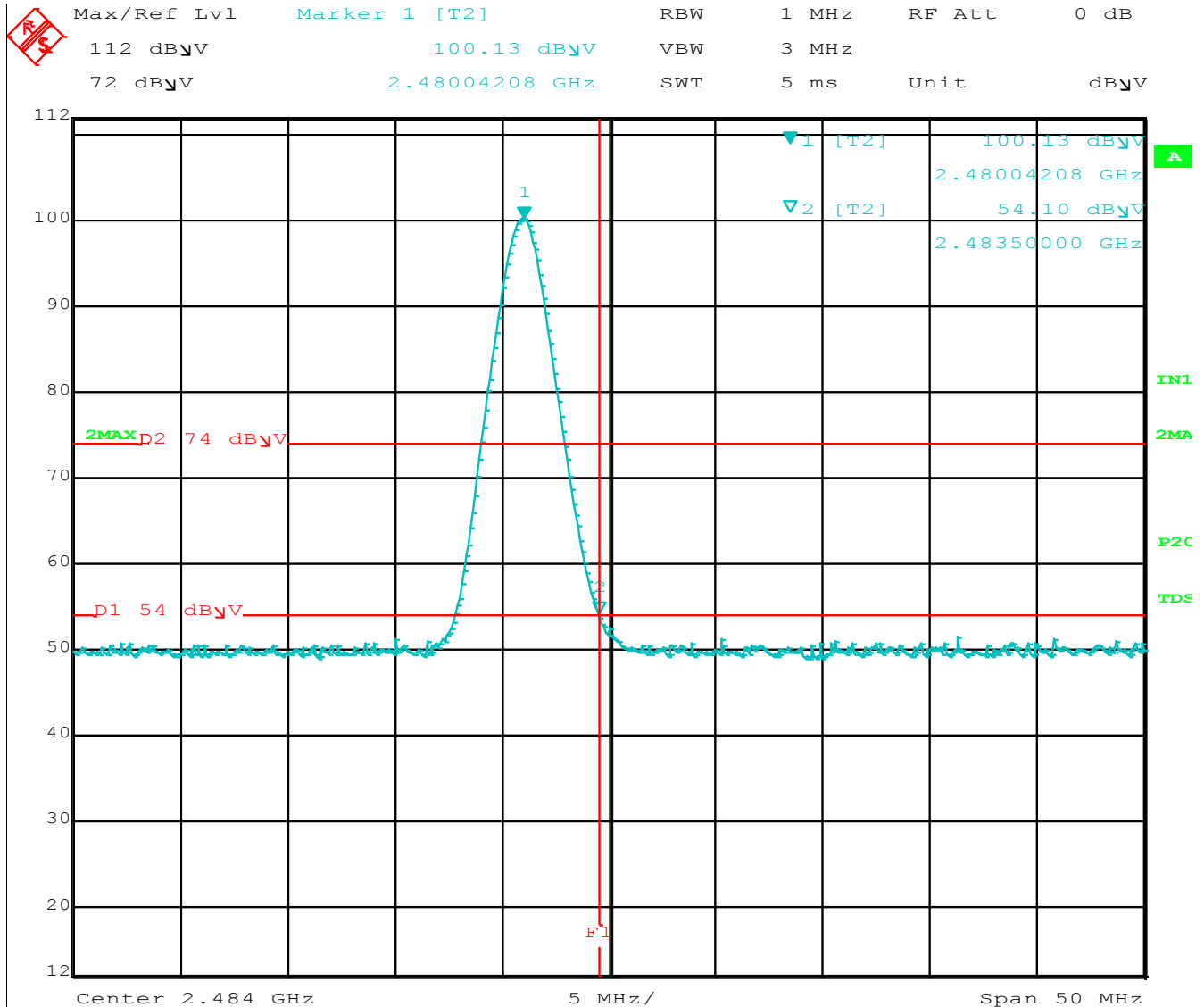
Brea Division
114 Olinda Drive
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2337 Troutdale Drive
Agoura, CA 91301
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(949) 589-0700

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UPPER BAND EDGE (Horizontal)



Title: BT
Comment A: UBEH



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114 Olinda Drive
Brea, CA 92823
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Agoura Division
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Agoura, CA 91301
(818) 597-0600

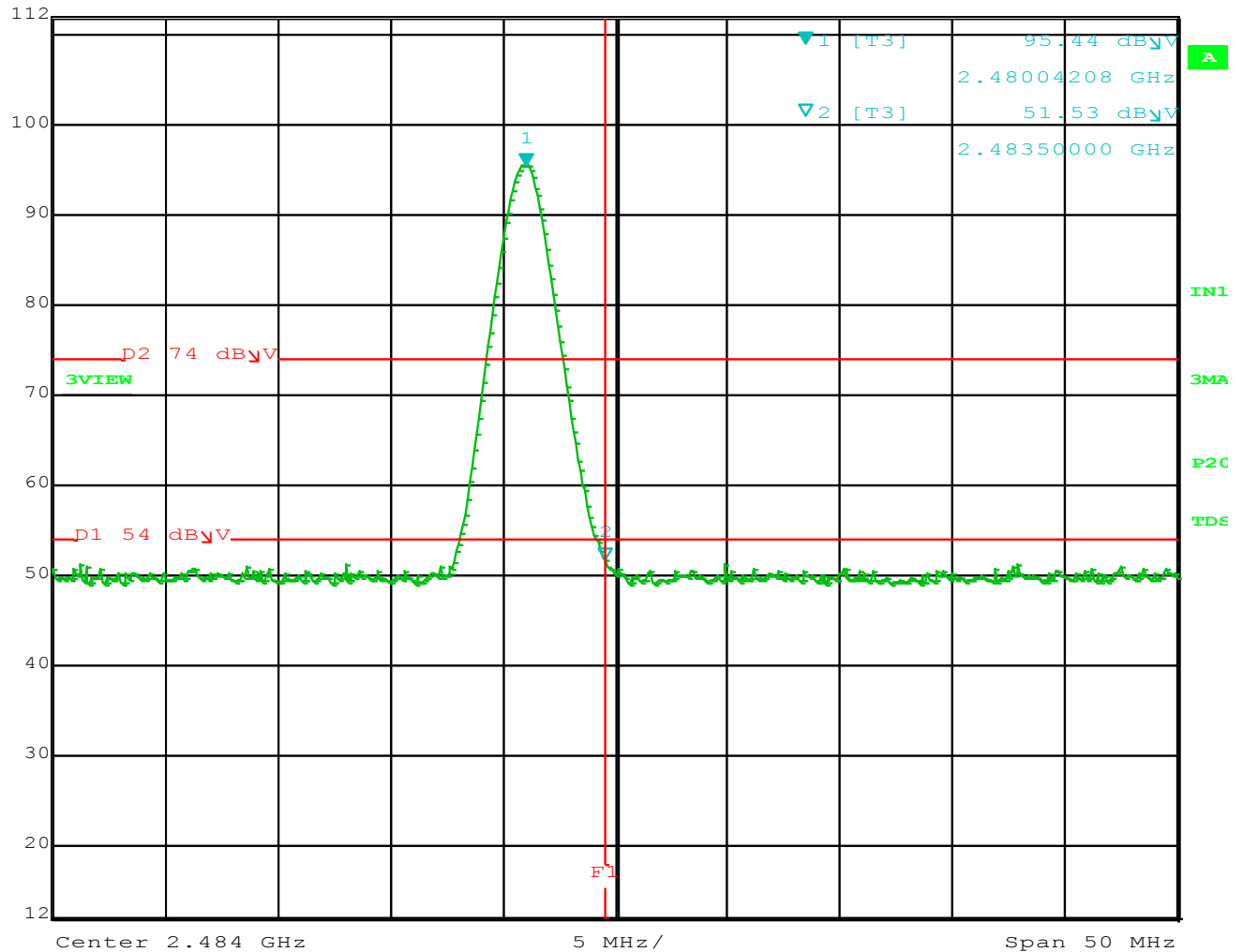
Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

UPPER BAND EDGE (Vertical)



Max/Ref Lvl	Marker 1 [T3]	RBW	1 MHz	RF Att	0 dB
112 dB μ V	95.44 dB μ V	VBW	3 MHz		
72 dB μ V	2.48004208 GHz	SWT	5 ms	Unit	dB μ V



Title: BT
Comment A: UBEV



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(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

BT Enhanced Mode

BAND EDGES- VERTICAL

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT Enhanced
Duty Cycle Correction Factor: -20.00

Date: 1/22/2016
Lab: P
Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBµV/m)	Pol	Limit (dBµV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402.00	84.61	V	--	--	Peak	1.7	137	Fundamental of Low Channel
								X Axis
2400.00	62.90	V	64.61	-1.71	Delta	1.7	137	From Peak
2388.30	51.27	V	73.98	-22.71	Peak	1.7	137	No Marker Delta Method Used
2388.30	31.27	V	53.98	-22.71	Avg	1.7	137	
2480.00	92.54	V	--	--	Peak	1.22	205	Fundamental of High Channel
2483.50	53.60	V	73.98	-20.38	Peak	1.22	205	No Marker Delta Method Used
2483.50	33.60	V	53.98	-20.38	Avg	1.22	205	X Axis

Test distance
3 meter



BAND EDGES- HORIZONTAL

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT Enhanced
Duty Cycle Correction Factor: -20.00

Date: 1/22/2016
Lab: P
Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dB μ V/m)	Pol	Limit (dB μ V/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402.00	89.99	H	--	--	Peak	1.05	0	Fundamental of Low Channel
								X Axis
2400.00	67.28	H	69.99	-2.71	Delta	1.05	0	
2384.35	51.68	H	73.98	-22.30	Peak	1.05	0	No Marker Delta Method Used
2384.35	31.68	H	53.98	-22.30	Avg	1.05	0	
2480.00	97.52	H	--	--	Peak	1.85	3	Fundamental of High Channel
2483.50	58.00	H	73.98	-15.98	Peak	1.85	3	No Marker Delta Method Used
2483.50	38.00	H	53.98	-15.98	Avg	1.85	3	X Axis

Test distance
3 meter



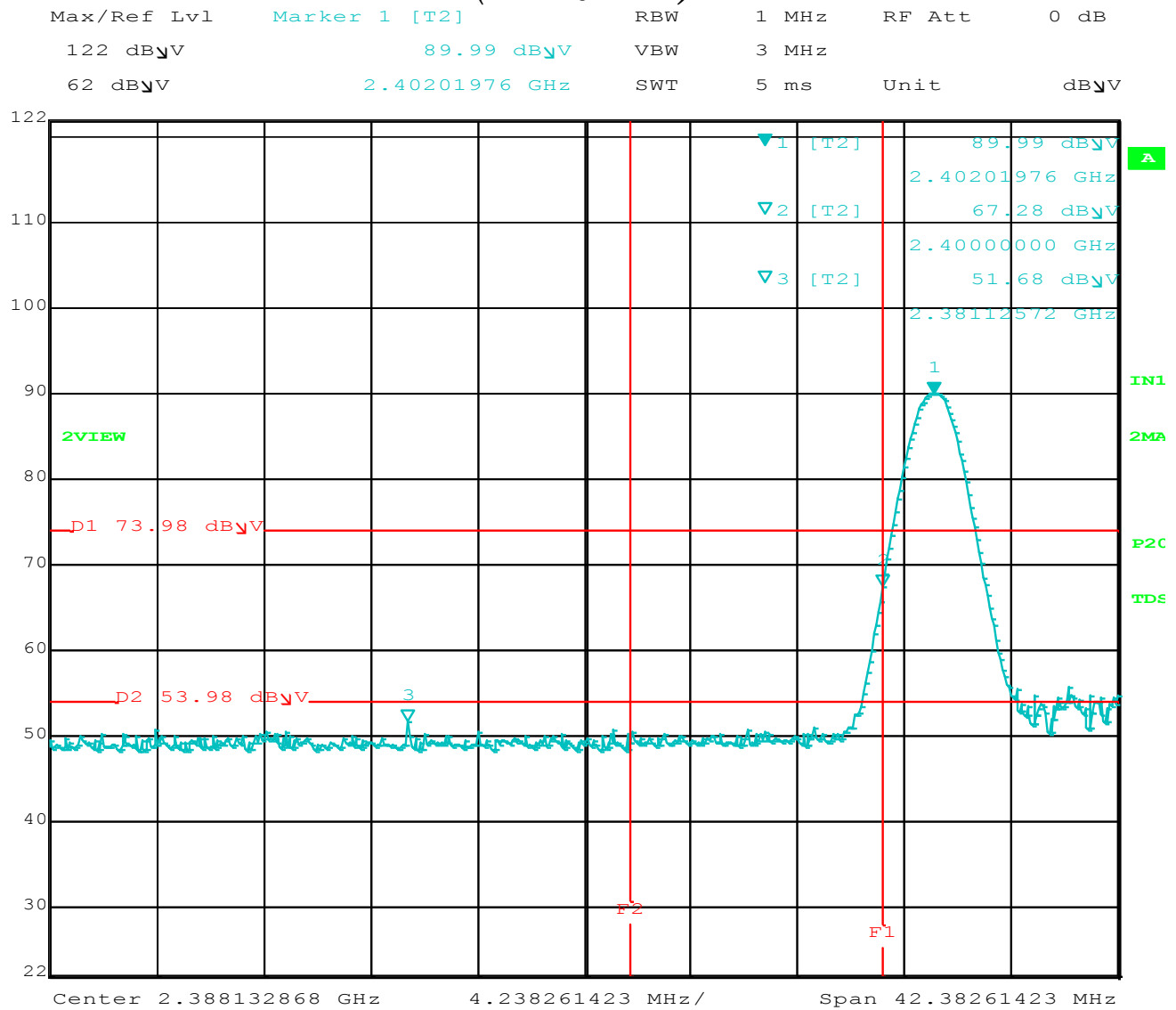
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
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(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

LOWER BAND EDGE (Horizontal)



Title: NUMERA BT DOCKING STATION, BT ENHANCED

Comment A: LBE



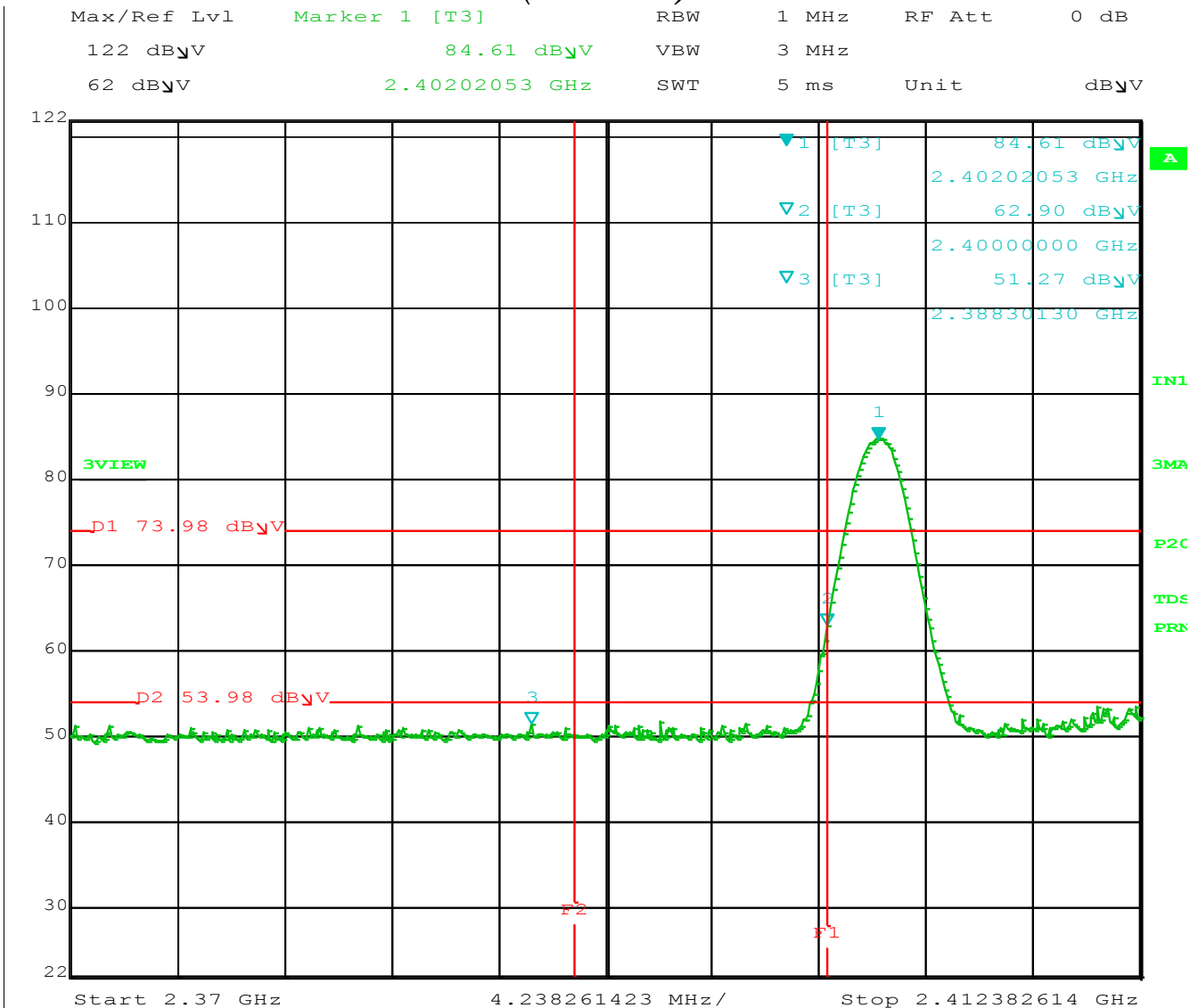
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

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(949) 587-0400

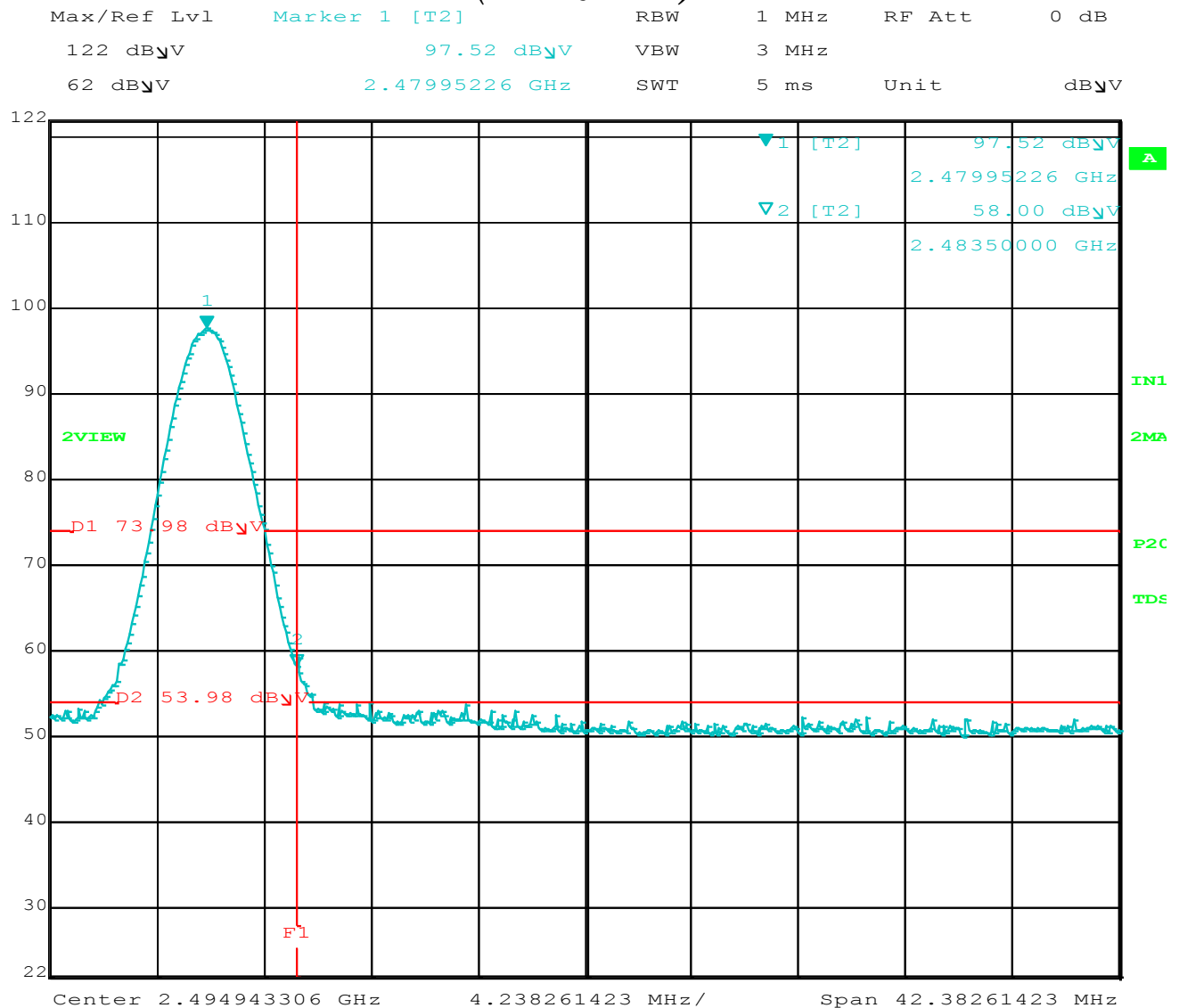
LOWER BAND EDGE (Vertical)



Title: NUMERA BT DOCKING STATION, BT ENHANCED
Comment A: LBE



UPPER BAND EDGE (Horizontal)



Title: NUMERA BT DOCKING STATION, BT ENHANCED
Comment A: UBE



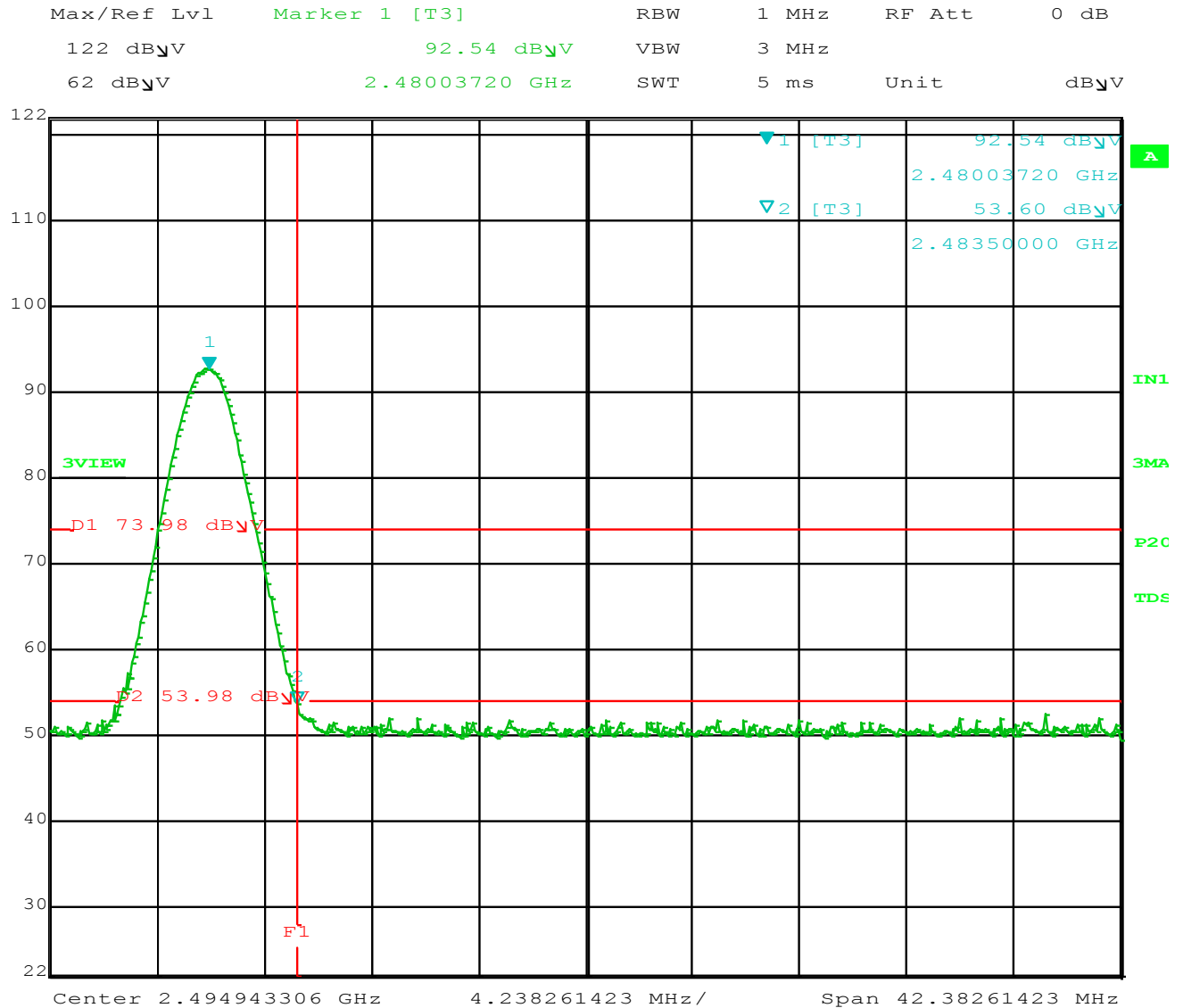
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
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Lake Forest, CA 92630
(949) 587-0400

UPPER BAND EDGE (Vertical)



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DUTY CYCLE***DATA SHEETS***

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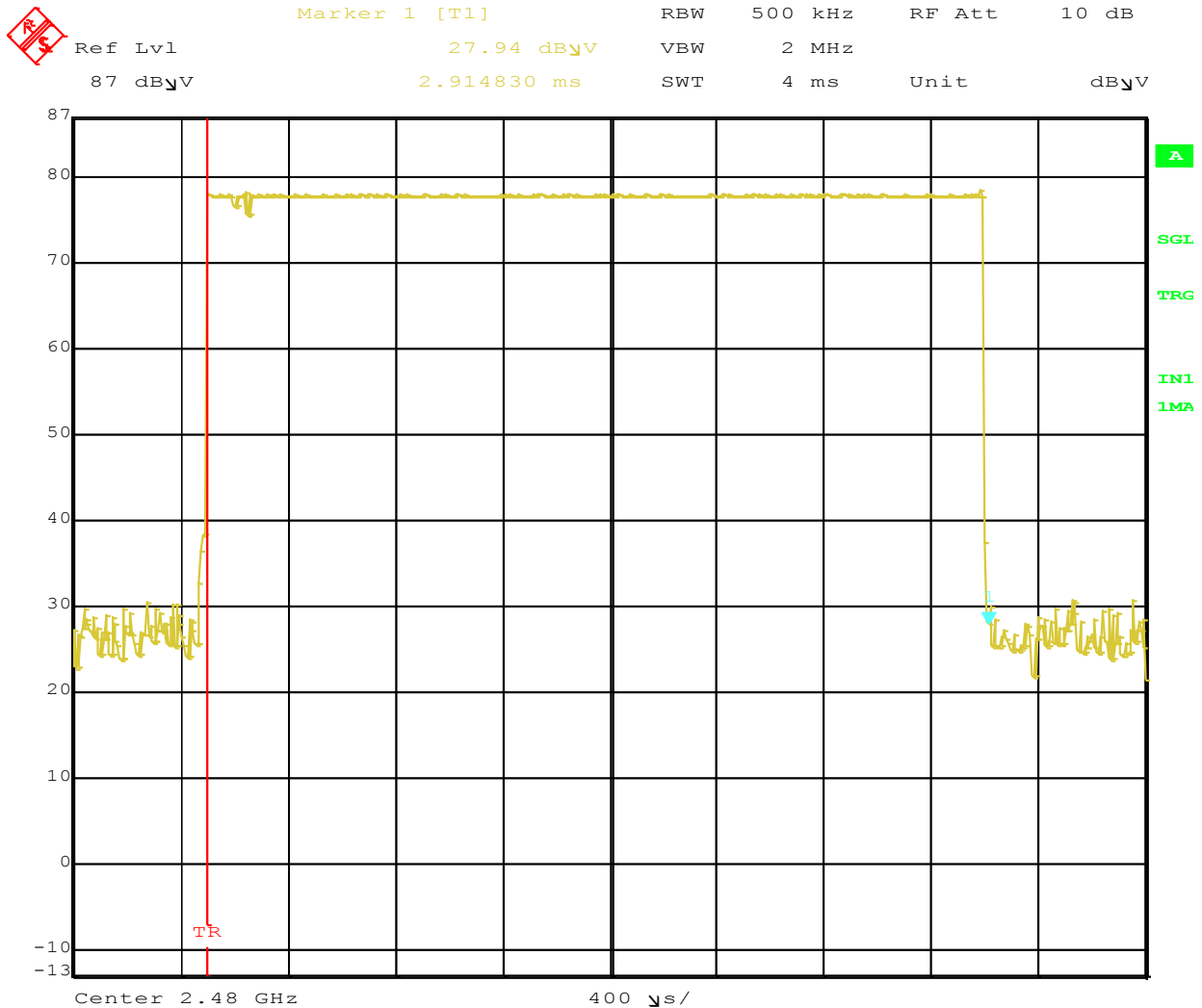
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DUTY CYCLE

BLE Mode



Comment A: Duty Cycle Pulse

Date: 25.FEB.2016 11:03:12

Duration of Pulse = 2914.83 μs



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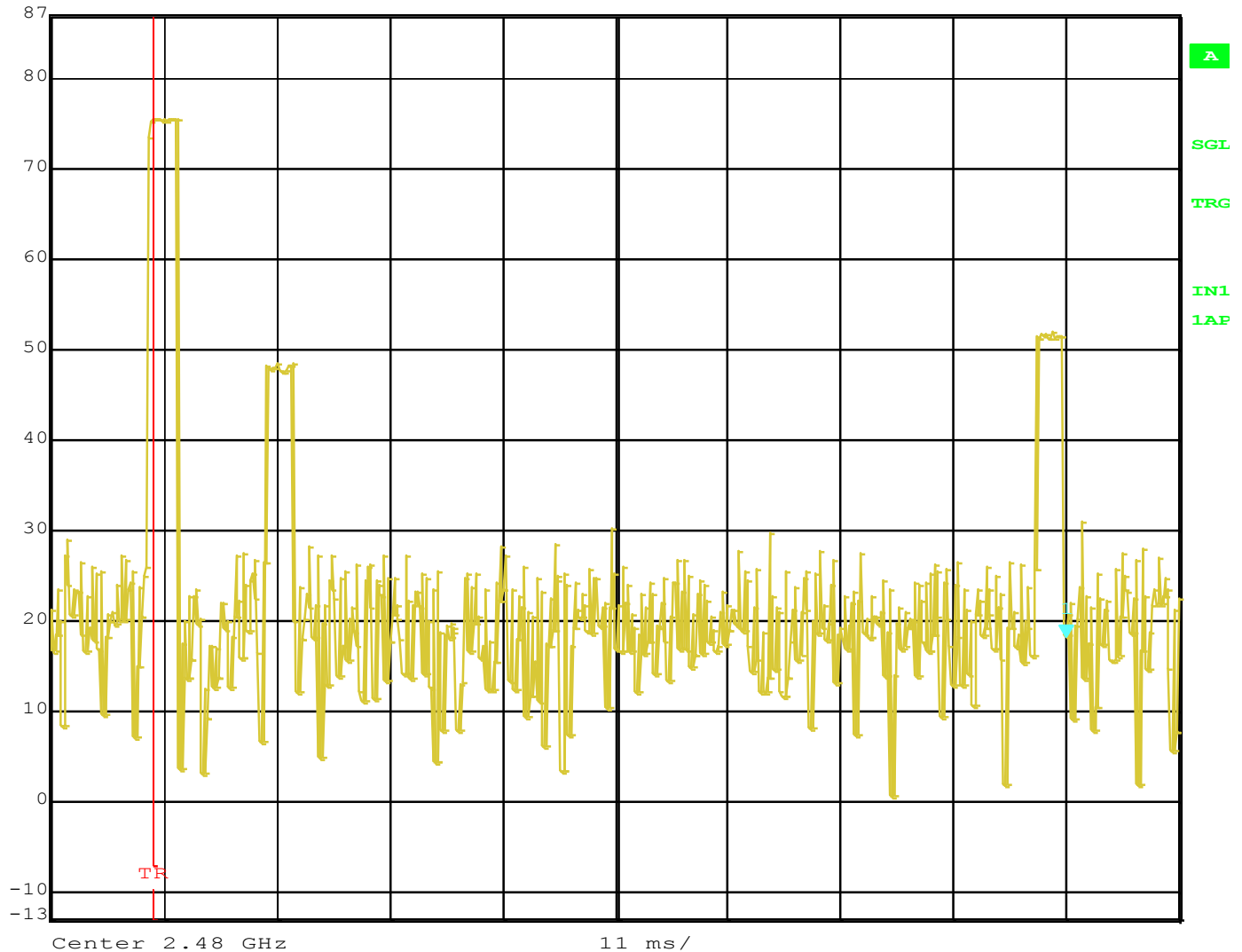
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Duty Cycle



Marker 1 [T1] RBW 500 kHz RF Att 10 dB
Ref Lvl 18.04 dB μ V VBW 2 MHz
87 dB μ V 88.977956 ms SWT 110 ms Unit dB μ V



Comment A: 100ms Duty Cycle

Date: 25.FEB.2016 10:58:06

Number of Pulses in Worst Case 100 ms = 3

Pulse On Time = $2914.83 \mu\text{s} \times 3 = 8.74449 \text{ ms}$

Duty Cycle = $8.74449 \text{ ms} / 100 \text{ ms} = 0.0874$

The Peak to Average Duty Cycle Correction = -21.165dB

Max Duty Cycle Correction Factor = -20.00dB

This was found to be the worst case duty cycle out of all modes, modulations, and data rates.



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AVERAGE TIME OF OCCUPANCY / DWELL TIME

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TIME OF OCCUPANCY / DWELL TIME

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT Enhanced

Date: 4/12/2016
Lab: R
Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab R)

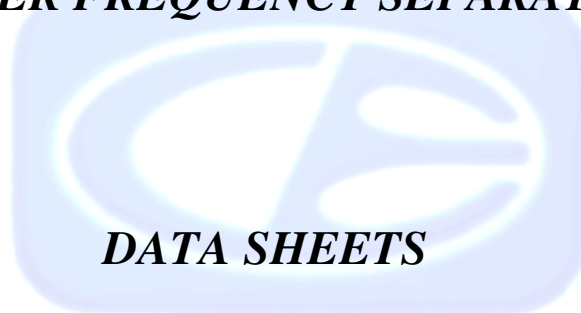
Freq. (MHz)	Measured Pulse (mS)	Pulses in (.4S*80)	Dwell Time (mS)	Limit (mS)	Margin (mS)	Comments
2402	2.91	128.00	373.10	400.00	-26.90	

This is the worst case for all modes





CARRIER FREQUENCY SEPARATION



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CARRIER FREQUENCY SEPARATION

FCC 15.247

Company: Nortek
EUT: Numera BT Docking Station
Model: S30-0547
Mode: BT

Date: 4/12/2016
Lab: R
Test ENG: Matt H.

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Measured Delta (kHz)	Limit (20dB BW) (KHz)	Margin (kHz)	Comments
2402-2403	996.00	936.70	-59.30	

This is the worst case for all modes

